Fisheries and Oceans Canada
Pêches et Océans Canada

Protocols for the sampling of commercial catches of marine fish and invertebrates in the Gulf of St. Lawrence

CONTEXT

The sampling of commercial catches of marine fish and invertebrates is one of the main tools used by the Department of Fisheries and Oceans (DFO) to achieve its mandate regarding the assessment of these resources. The implementation of the sampling program is ensured by specialized personnel. One of their functions is to collect biological data related to all species of marine groundfish, pelagic fish and invertebrates landed in the various maritime communities.

The commercial data delivery for fishing activities conducted in the Gulf of St. Lawrence is the result of DFO interregional agreements for commercial catch sampling, while taking into account each region's resource status responsibilities. The protocols, like the sampling plans which are re-examined annually, are standardized in consultation with assessment biologists responsible for each exploited stock.

This document presents the protocols for the collection of biological data for commercial catches of marine species in the Gulf of St. Lawrence and is structured according to fish and invertebrate species groups. For each species, the sampling protocols are illustrated in the form of shortened data sheets on which the species code, the type of form, the main procedure guidelines, the sampling stratification criteria as well as the biological material collection techniques for detailed laboratory examination are presented. Forms and detailed directives to complete these are also available. The codes and procedures particular to each type of sampling, the definition of fishing zones as that of the landing districts are also available.

FISH

Data sheets

Sampling forms

Directives - forms

Summary of protocols

INVERTEBRATES

Data sheets

Sampling forms

Directives - forms

Summary of protocols

SAMPLING FORMS - FISH

Port sampling

Accuracy of 1.0 cm, 1.0 mm and 0.1 mm

Accuracy of 0.5 cm

At-sea sampling

Accuracy of 1.0 cm, 1.0 mm and 0.1 mm

Accuracy of 0.5 cm

DIRECTIVES – SAMPLING FORMS (FISH)

Port sampling

At-sea sampling

SAMPLING FORMS - INVERTEBRATES

Port sampling

Waved Whelk
Common Razor Clam
Hyas Crab
Rock Crab
Snow Crab
Northern Shrimp
American Lobster
Surf Clam sp.
Soft Shell Clam
Green Sea Urchin
Scallop sp.

At-sea sampling

Waved Whelk
Common Razor Clam
Hyas Crab
Rock Crab
Snow Crab
Northern Shrimp
American Lobster
Surf Clam sp.
Soft Shell Clam
Green Sea Urchin
Scallop sp.

DIRECTIVES – SAMPLING FORMS (INVERTEBRATES)

Port sampling

Waved Whelk
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Surf Clam sp.
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At-sea sampling

Waved Whelk
Common Razor Clam
Hyas Crab
Rock Crab
Snow Crab
Northern Shrimp
American Lobster
Surf Clam sp.
Soft Shell Clam
Green Sea Urchin
Scallop sp.

Description of a data sheet - Fish

Data sheets

Spiny Dogfish – Additional taxonomic information

Capelin – Additional taxonomic information

Atlantic Halibut – Additional taxonomic information

Greenland Halibut – Additional taxonomic information

Atlantic Herring, divisions 4RS – Additional taxonomic information

Atlantic Herring, division 4T

Yellowtail Flounder – Additional taxonomic information

Atlantic Mackerel – Additional taxonomic information

White Hake – Additional taxonomic information

Atlantic Cod, divisions 3Pn4RS – Additional taxonomic information

Atlantic Cod, division 4T

American Plaice – Additional taxonomic information

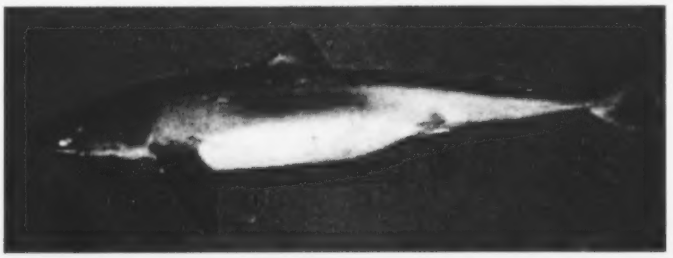
Witch Flounder – Additional taxonomic information

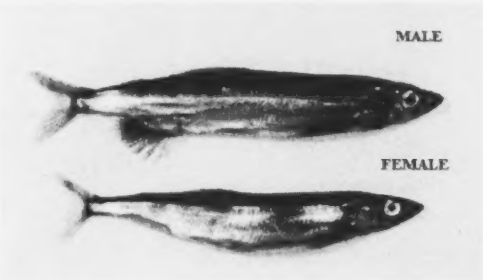
Winter Flounder – Additional taxonomic information

Redfish sp. – Additional taxonomic information

Description of a data sheet - Fish

Species name CODE: species code (Waite 1983)	Species illustration
Fishing zone:	NAFO divisions (Halliday and Pinhorn 1990) to which the data sheet applies.
Sampling protocol:	Type of sampling (port or at-sea).
PROCEDURES	
USE:	The form corresponding to the sampled species as well as the directives attached to it, according to the type of sampling.
SELECT:	The number of fish required per sample.
SEX:	Indication on the need for determining or not the sex for the sampled species.
MEASURE:	The grouping and the type of length measurement required for the sampled species.
COLLECT:	The selection criteria for the collection of otoliths, spines or for the preservation of specimens.
PRESERVE:	The preservation method for the collection of specimens, otoliths or spines.

SPINY DOGFISH CODE: 0220	 Photo: É. Parent
Fishing zone:	**4RST**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes.
MEASURE:	The total length and round to the nearest 1.0 cm. Lower the caudal peduncle in order to measure the maximal length.
COLLECT:	1 spine of the posterior dorsal fin by 1.0 cm length-class per sex.
PRESERV:	The spines in envelopes, labeled according to the instructions.

CAPELIN CODE: 0064	 Photo: F. Grégoire
Fishing zone:	**4RST**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 fish per tow for as many tows as possible per trip.
port:	Select randomly around 150 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 150 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes. The male can be distinguished by its secondary sex characteristics, such as its lateral line and its anal fin that are larger during spawning season.
MEASURE:	The total length and round to the nearest 1.0 mm.
COLLECT:	1 fish by 5.0 mm length-class per sex.
PRESERVE:	Each fish frozen separately in plastic bags labeled with the sex and the length. The bags are placed in waxed cartons labeled according to the instructions.

ATLANTIC HALIBUT CODE: 0030	 Photo: C. Nozères
Fishing zone:	**4RST**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes. Determine the maturity only when otoliths are collected.
MEASURE:	The fork length and round to the nearest 1.0 cm.
COLLECT:	3 otoliths by 1.0 cm length-class per sex.
PRESERVE:	The otoliths in envelopes labeled according to the instructions. Note the maturity on the envelopes according to these codes: MA mature IM immature

GREENLAND HALIBUT CODE: 0031	 Photo: C. Nozères
Fishing zone:	**4RST**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 fish per tow for as many tows as possible per trip.
port:	Select randomly around 150 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 150 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes.
MEASURE:	The fork length and round to the nearest 1.0 cm.
COLLECT:	No.
PRESERVE:	The otoliths in envelopes labeled according to the instructions.

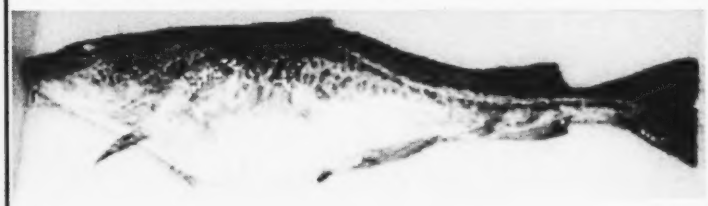
ATLANTIC HERRING CODE: 0060	 Photo: F. Grégoire
Fishing zone:	**4RS**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 fish per tow for as many tows as possible per trip.
port:	Select randomly around 150 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 150 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	No.
MEASURE:	The total length and round to nearest 0.5 cm.
COLLECT:	55 fish selected randomly, excluding individuals that have been measured.
PRESERVE:	The fish frozen in waxed cartons labeled according to the instructions.

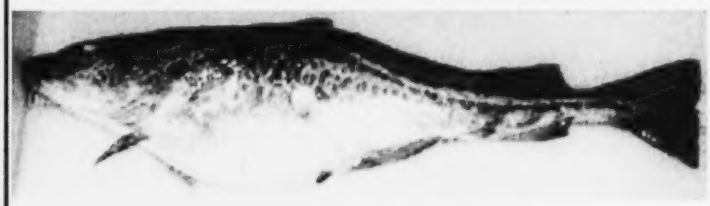
ATLANTIC HERRING CODE: 0060	 Photo: F. Grégoire
Fishing zone:	**4T**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	No.
MEASURE:	The total length by gripping the caudal lobes and round to the lowest 0.5 cm.
COLLECT:	2 fish by 0.5 cm length-class among the measured fish.
PRESERVE:	The fish frozen in waxed cartons labeled according to the instructions.

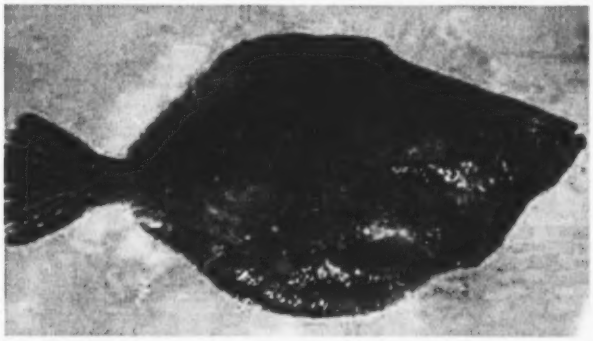
YELLOWTAIL FLOUNDER CODE: 0042	 Photo: É. Parent
Fishing zone:	**4T**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change after with each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes.
MEASURE:	The total length and round to the nearest 1.0 cm.
COLLECT:	1 otolith by 1.0 cm length-class per sex.
PRESERVE:	The otoliths in envelopes labeled according to the instructions.

ATLANTIC MACKEREL CODE: 0070	 Photo: S. Hurtubise
Fishing zone:	**4RST**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change after with each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 fish per tow for as many tows as possible per trip.
port:	Select randomly around 150 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 150 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	No.
MEASURE:	The fork length and round to the nearest 0.5 cm.
COLLECT:	2 fish by 0.5 cm length-class.
PRESERVE:	The fish frozen in waxed cartons labeled according to the instructions.

WHITE HAKE CODE: 0012	 Photo: C. Nozères
Fishing zone:	**4T**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	No.
MEASURE:	The total length and round to the nearest 1.0 cm.
COLLECT:	1 otolith by 1.0 cm length-class per sex.
PRESERVE:	The otoliths in envelopes labeled according to the instructions.

ATLANTIC COD CODE: 0010	 Photo: A. Chevrier
Fishing zone:	**4RS, 3Pn**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 fish per tow for as many tows as possible per trip.
port:	Select randomly around 150 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 150 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	No.
MEASURE:	The fork length and round to the nearest 1.0 cm.
COLLECT:	3 otoliths by 3.0 cm length-class.
PRESERVE:	The otoliths in envelopes labeled according to the instructions.

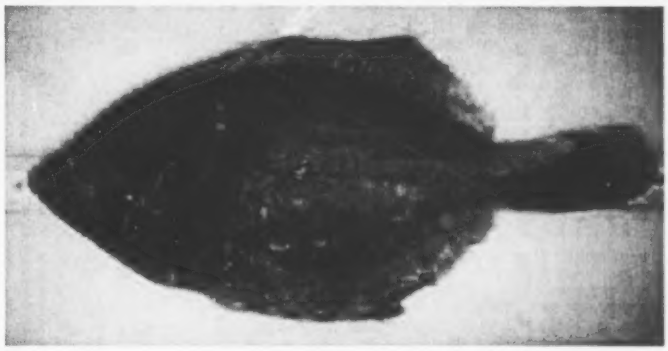
ATLANTIC COD CODE: 0010	 Photo: A. Chevrier
Fishing zone:	**4T**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	No.
MEASURE:	The fork length and round to the nearest 1.0 cm.
COLLECT:	1 otolith by 1.0 cm length-class.
PRESERVE:	The otoliths in envelopes labeled according to the instructions.

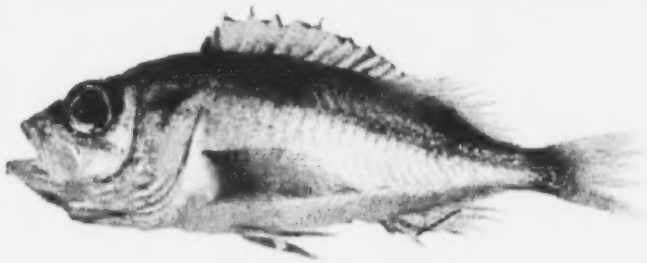
AMERICAN PLAICE CODE: 0040	 Photo: A. Chevrier
Fishing zone:	**4T**
Sampling protocol:	**at-sea or port sampling**

PROCEDURES

USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for a as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes.
MEASURE:	The total length and round to the nearest 1.0 cm.
COLLECT:	1 otolith by 1.0 cm length-class per sex.
PRESERVE:	The otoliths in vials containing glycerin and labeled according to the instructions.

WITCH FLOUNDER CODE: 0041	 Photo: C. Nozères
Fishing zone:	**4RST**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes.
MEASURE:	The total length and round to the nearest 1.0 cm.
COLLECT:	1 otolith by 1.0 cm length-class per sex.
PRESERVE:	The otoliths in envelopes labeled according to the instructions.

WINTER FLOUNDER CODE: 0043	 Photo: C. Nozères
Fishing zone:	**4RST**
Sampling protocol:	**at-sea or port sampling**
PROCÉDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 250 fish per tow for as many tows as possible per trip.
port:	Select randomly around 250 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 250 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes.
MEASURE:	The total length and round to the nearest 1.0 cm.
COLLECT:	No.
PRESERVE:	No.

REDFISH CODE: 0023	 Photo: C.Nozères
Fishing zone:	**4 RST, 3Pn4Vn from January to March (Unit 1)**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 fish per tow for as many tows as possible per trip.
port:	Select randomly around 150 fish from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of fish to sample by category is defined by the following rule: 150 fish ÷ by the number of categories = the number of fish to measure by category.
SEX:	Yes.
MEASURE:	The fork length and round to the nearest 1.0 cm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the forms – Fish (at-sea sampling)

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the NAFO unit area in the first three cells. The fishing ground in the last four.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Leave the cells blank for recreational fishing (eg: capelin sampled on the beach). Notice: Landing = catch - discard.	
Gear:	code of the gear used by the fisher.	
Mesh size:	size, in millimeters, of the net or codend stretched mesh, accordingly.	
Sequential no. of gear haul	sequential gear haul number as determined by the fisher.	
Depth:	depth, in meters, of the site where the gear has been fishing.	

Fishing effort: determination of the fishing effort by gear type used.

Example:

gillnet (GN): number of gillnets used in each haul.

bottom otter trawl (OTB): tow duration (number of hours) during which the trawl was fishing.

longline (LL): number of longlines used in each haul.

jigger (LHM): number of jiggers used multiplied (x) by the number of hours fished.

Catch weight: total weight, in kilograms, of the sampled species catch (before discarding).

Sample weight: total weight, in kilograms, of all the measured fish noted on the form. The value can be exact or estimated.

Group: code for accuracy and units of measurement for the measured fish noted on the form:

1.0 cm:	1	1.0 mm:	3
0.5 cm:	2	0.1 mm:	4

Type of measurement: type of measurement used.

Fishing site: position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.

Seq. no: sequential number of the collected spines or otoliths for each length-class, according to the stratification criteria described in the data sheets. This number is unique for the sample.

Length: length of the measured fish according to the procedures described in the data sheet for the sampled species. For species requiring otoliths collection grouped by 3.0 cm length-class, measurements must be recorded on the form using a length-class stratification for which the first interval is from 0-2.0 cm.

Count/Sex for each measured fish, draw a vertical line (|) in the space corresponding to its length and sex (illustrations spiny dogfish and flatfish). Note the sex as follows:

M: male F: female I: unsexed

Total: total number of measured fish for each length-class, per sex (when applicable).

No. of measured fish: total number of measured fish noted on the form.

No. of otoliths/ spines:	total number of preserved otoliths or spines noted on the form according to the procedures described in the data sheets.
No. of frozen fish:	total number of frozen fish according to the procedures described in the data sheets.
Notes:	space provided for comments.

Directives related to forms – Fish (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the NAFO unit area in the first three cells. Leave the remaining cells blank.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Leave the cells blank for recreational fishing (eg: capelin sampled on the beach). Notice: Landing = catch - discard.	
Gear:	code of the gear used by the fisher.	
Mesh size:	size, in millimeters, of the net or codend stretched mesh, according to the case.	
Depth:	average depth, in meters, of all the sites where the gear has been fishing.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of fish selected from the catch according exclusively to commercial criteria.	

Sampled cat.: code for the commercial category sampled:

unsorted:	0
very small:	1
small:	2
medium:	3
large:	4
very large:	5
others (to be described in the notes):	9

Cat. weight: total weight, in kilograms, of the category from which the sampled species fish specimens have been selected.

Sample weight: total weight, in kilograms, of all the measured fish noted on the form. The value can be exact or estimated.

Sampled status: status of the sampled species:

round:	1
gutted:	2
gutted, head off:	3
bobtailed:	4
bled:	5
split:	6
others (to be described in the notes):	9

Group: code for accuracy and units of measurement for the measured fish noted on the form:

1.0 cm:	1	1.0 mm:	3
0.5 cm:	2	0.1 mm:	4

Type of measurement: type of measurement used.

Seq. no: sequential number of the collected spines or otoliths for each length-class, according to the stratification criteria described in the data sheets. This number is unique for the sample.

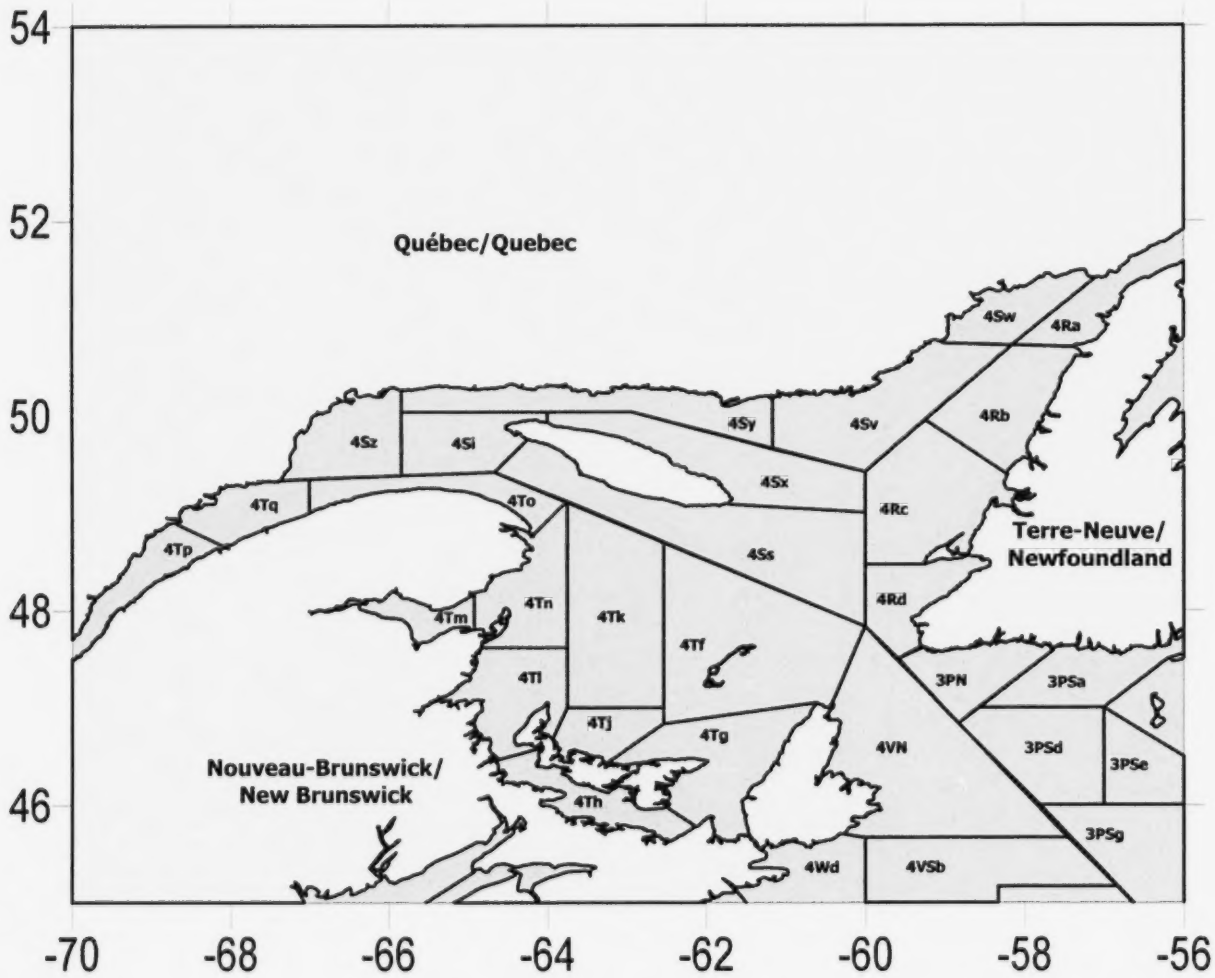
Length:	length of the measured fish according to the procedures described in the data sheet for the sampled species. For species requiring otoliths collection grouped by 3.0 cm length-class, measurements must be recorded on the form using a length-class stratification for which the first interval is from 0-2.0 cm.
Count/Sex	for each measured fish, draw a vertical line (|) in the space corresponding to its length and sex (illustrations spiny dogfish and flatfish). Note the sex in the following way: M: male F: female I: unsexed
Total:	total number of measured fish for each length-class, per sex (when applicable).
No. of measured fish:	total number of measured fish noted on the form.
No. of otoliths/ spines:	total number of preserved otoliths or spines noted on the form according to the procedures described in the data sheets.
No. of frozen fish:	total number of frozen fish according to the procedures described in the data sheets.
Notes:	space provided for comments.

Limits of the NAFO fishing unit areas (Halliday and Pinhorn 1990). See the map.

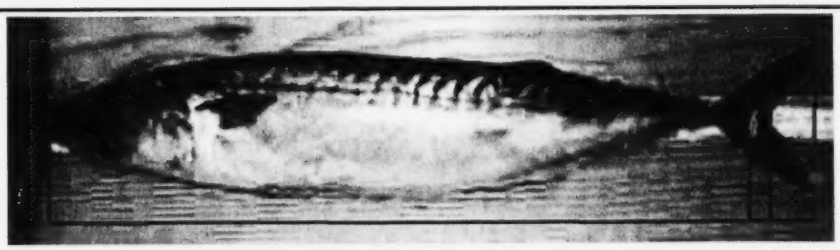
NAFO: Northwest Atlantic Fisheries Organization

UNIT AREA	DESCRIPTION
4Tf	Magdalen Islands area
4Tm	Restigouche to Port-Daniel Est
4Tn	Pointe-au-Maquereau to Cap-de-Gaspé
4To	*Cap-de-Gaspé to Capucins
4Tp	Ste-Flavie to Quebec to Colombier
4Tq	Les Méchins to Métis and Betsiamites to Pointe-des-Monts
4Si	Area west to Anticosti Island
4Ss	Area south to Anticosti Island
4Sz	*Pointe-des-Monts to rivière Moisie
4Sy	*Rivière Moisie to Natashquan
4Sv	Kégaska to Tête-à-la-Baleine
4Sw	Baie-des-Moutons to Blanc-Sablon
4Ra	*Blanc-Sablon to Pointe Riche
4Rb	*Pointe Riche to Pearl Island
4Rc	*Pearl Island to Cape St George
4Rd	*Cape St George to Cape Ray
3Pn	*Cape Ray to Burgeo
	* Locality included in the zone.

NAFO unit areas (Adapted from Halliday and Pinhorn 1990).



Types of measurements for marine fish sampling.

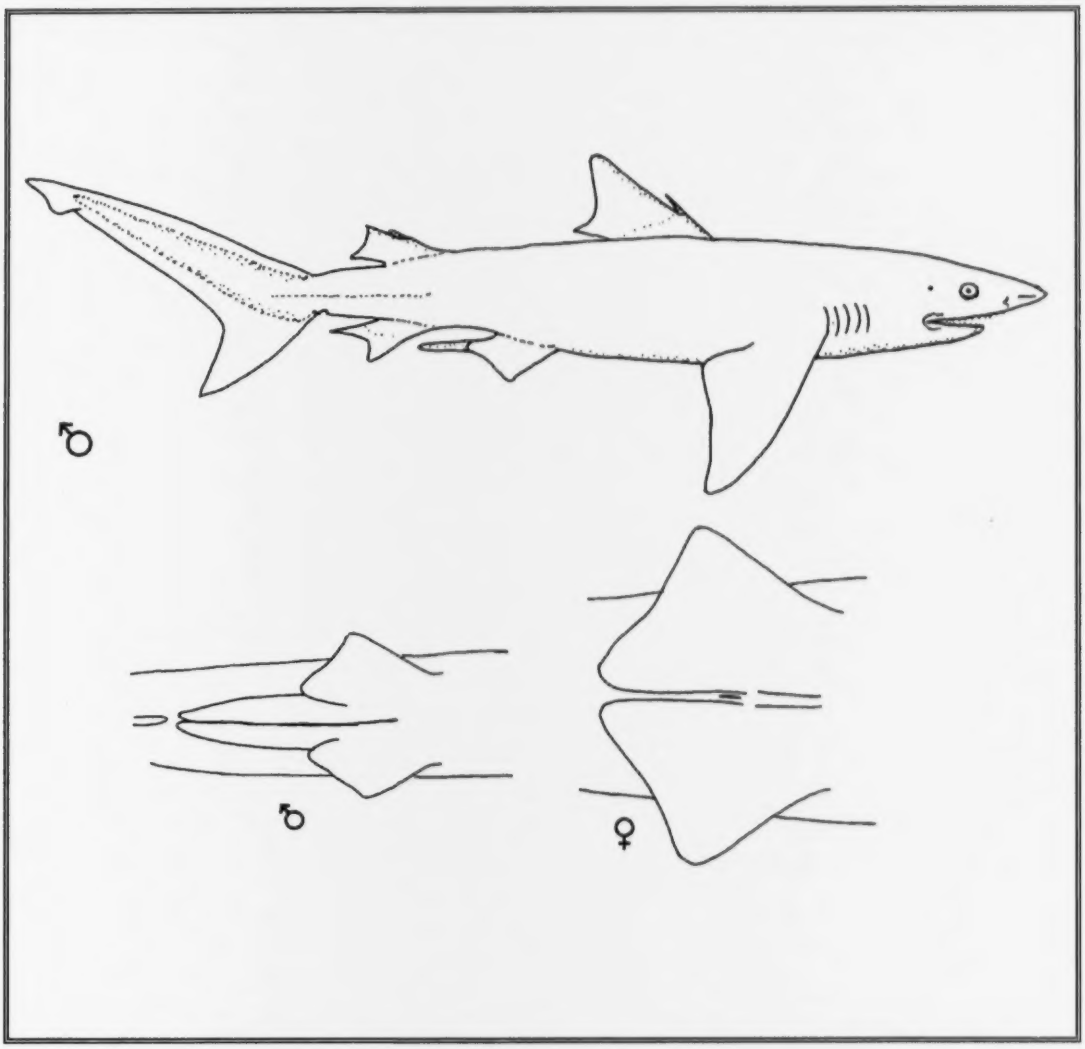


(3) (2)(1)

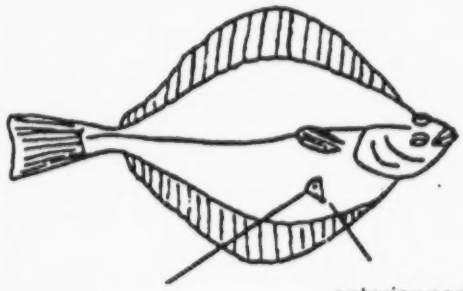
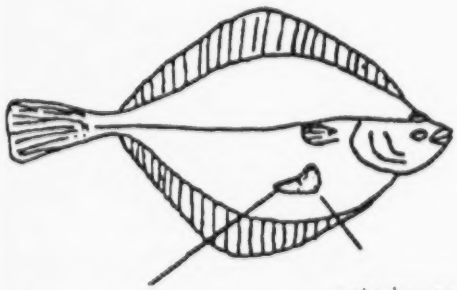
Photo: S. Hurtubise

(1) <u>Total</u> length:	**from the forward end of the head to the end of the longest caudal fin ray, except for herring of area 4T for which the rays must be brought back on the longitudinal axis by gripping the tail.**
(2) <u>Fork</u> length:	**from the forward end of the head to the cartilaginous end of the shortest ray or median ray of the caudal fin.**
(3) <u>Standard</u> length:	**from the forward end of the head to the end of the caudal peduncle.**

Illustrations of the sexual characteristics of the Spiny Dogfish (Compagno 1984).



Illustrations of the sexual characteristics of flatfish (Adapted from Kulka and Firth 1985).

	IMMATURE	MATURE
MALE	 anterior part round small and firm gonad	 anterior part slender whitish gonad, firm no posterior lobe Photo: R. Morneau
FEMALE	 anterior part round small gonade, posterior lobe not much developed	 anterior part round soft gonad, pinkish Photo: R. Morneau

Description of a data sheet - Invertebrates

DATA SHEETS

Waved Whelk – Additional taxonomic information

Common Razor Clam – Additional taxonomic information

Hyas Crab – Additional taxonomic information

- At-sea
- Port

Rock Crab – Additional taxonomic information

Snow Crab – Additional taxonomic information

- Inshore – At-sea
- Inshore - Port
- Offshore – At-sea
- Offshore - Port

Northern Shrimp – Additional taxonomic information

American Lobster – Additional taxonomic information

Surf Clam sp. – Additional taxonomic information

Soft Shell Clam – Additional taxonomic information

Green Sea Urchin – Additional taxonomic information

Scallop sp. – Additional taxonomic information

- At-sea
- Port

Description of a data sheet - Invertebrates.

Species name CODE: species code (Waite 1983)	Species illustration
Fishing zone:	Zones of the fishery management plan to which the data sheet applies.
Sampling protocol:	Type of sampling (port or at-sea).
PROCEDURES	
USE:	The form corresponding to the sampled species as well as the directives attached to it, according to the type of sampling.
SELECT:	The number of individuals required per sample.
SEX:	Indication on the need for determining or not the sex for the sampled species.
MEASURE:	The grouping and the type of length measurement required for the sampled species.
COLLECT:	The selection criteria for the preservation of specimens.
PRESERVE:	The preservation method for the collection of specimens.

WAVED WHELK CODE: 4211	 Photo: Y. Dufresne
Fishing zone:	**1 to 15**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	All the whelks of a pot for as many pots as possible per trip.
port:	Select randomly around 150 whelks from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of whelks to sample by category is defined by the following rule: 150 whelks ÷ by the number of categories = the number of whelks to measure by category.
SEX:	Yes.
MEASURE:	The maximal height of the shell and round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Waved Whelk (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The fishing ground in the last four.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Gear:	code of the gear used by the fisher.	
Total no. of pots:	total number of hauled pots corresponding to the landing.	
Mesh size:	size, in millimeters, of the pot stretched mesh.	
Pot seq. no.:	sequential number of the pot hauling, as determined by the fisher.	
Depth:	depth, in meters, of the site where the gear has been fishing.	
Soaking time	number of days during which the pot was soaked.	
Catch weight	total weight, in kilograms, of the sampled species catch (before discarding).	

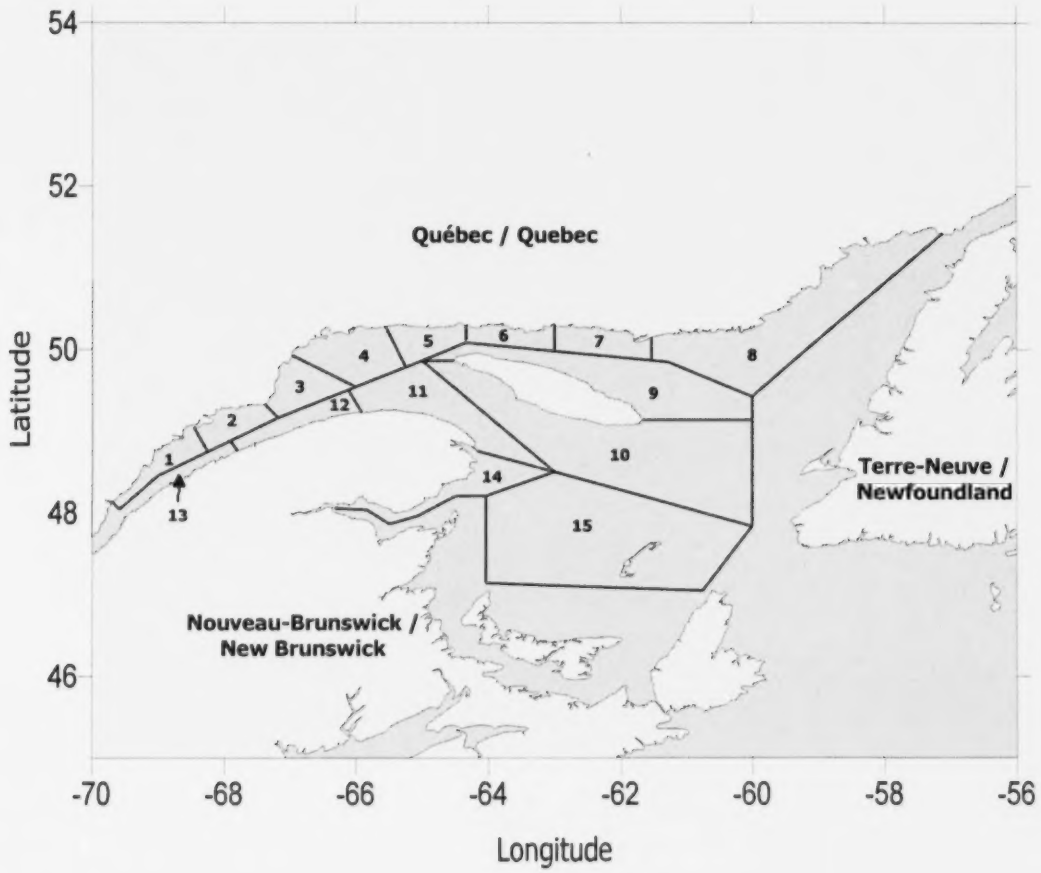
Sample weight:	total weight, at the nearest 0.1 kilogram, of all the measured whelks noted on the form. The value may be exact or estimated.
Fishing site:	position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Height:	maximal height of the shell measured according to the procedures.
Count/Sex:	for each measured whelk, draw a vertical line (|) in the space corresponding to the height and sex (illustrations). Note the sex in the following way: M: male F: female
Total:	total number of measured whelks for each height-class, per sex.
No. measured	total number of measured whelks noted on the form.
No. smashed	total number of smashed whelks in the sample that could not be measured.
Notes:	space provided for comments.

Directives related to the form – Waved Whelk (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone ground:	the fishing zone in the first two cells. The remaining cells are left blank.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Gear:	code of the gear used by the fisher.	
Total no. of pots:	approximation of the total number of hauled pots corresponding to the landing.	
No. of pots per sling:	average number of pots per sling.	
Soaking time	average number of days during which all the pots were soaked.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of whelks selected from the catch according exclusively to commercial criteria.	

Sampled cat.:	code of the commercial category sampled:
	unsorted: 0
	very small: 1
	small: 2
	medium: 3
	large: 4
	very large: 5
	others (to be described in the notes): 9
Cat. weight:	total weight, in kilograms, of the category from which the sampled whelks have been selected.
Sample weight:	total weight, at the nearest 0.1 kilogram, of all the measured whelks noted on the form. The value can be exact or estimated.
Height:	maximal height of the shell measured according to the procedures.
Count/Sex:	for each measured whelk, draw a vertical line (|) in the space corresponding to the height and sex (illustrations). Note the sex in the following way: M: male F: female
Total:	total number of measured whelks for each height-class, per sex.
No. measured	total number of measured whelks noted on the form.
No. smashed	total number of smashed whelks in the sample that could not be measured.
Notes:	space provided for comments.

Waved Whelk fishing zones.



Type of measurement for Waved Whelk sampling.

WAVED WHELK

end of the whorl

base

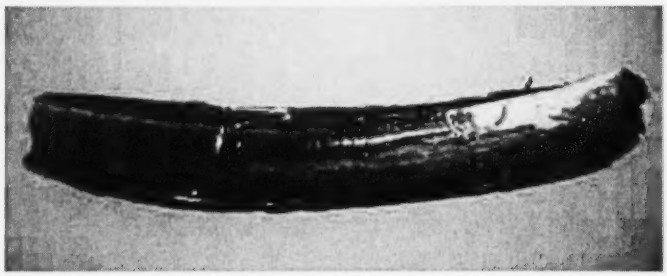
Photo: R. Morneau

maximal height of the shell

Illustrations of the Waved Whelk sexual characteristics.

Photo: I. Bérubé

Female **Male (penis)**

COMMON RAZOR CLAM CODE: 4301	 Photo: S. Hurtubise
Fishing zone:	**1 to 3**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled haul.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 clams per haul for as many hauls as possible per trip.
port:	Select randomly around 150 clams from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of clams to sample by category is defined by the following rule: 150 clams ÷ by the number of categories = the number of clams to measure by category.
SEX:	No.
MEASURE:	The maximal anteroposterior length of the shell and round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Common Razor Clam (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the first cell according to the following codification:	
	Magdalen Islands:	1
	Gaspé:	2
	North Shore :	3
	The fishing ground is noted in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	standard dredge (boat)	DRB
	hydraulic dredge (without a conveyor)	DHY
	hydraulic dredge (with a conveyor)	DHYC
	manually picked	CMA

Total no. of tows/pans:	total number of tows or of collected pans at the time of picking, corresponding to the landing.
Total width of the dredge:	total width of a dredge multiplied by the total number of used dredges and round to the nearest 0.1 m.
Seq. no. of tow/pan:	sequential number of the tow or of the filling of pan, as determined by the fisher.
Depth:	depth, in meters, of the site where the gear has been fishing.
Tow/pick duration:	number of minutes during which the sampled dredge was fishing or number of minutes spent by the harvester to fill the sampled pan.
Tow/pan weight:	total weight, in kilograms, of the tow/pan (before discarding) for the sampled species.
Sampled fraction of tow/pan:	sampled fraction, in percent, of the tow/pan. NB a tow may be done with more than one dredge.
Fishing site:	position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Length:	the maximal anteroposterior length of the shell measured according to the procedures.
Count:	for each measured clam, draw a vertical line (|) in the space corresponding to the shell length.
Total:	total number of measured clams for each length-class.
No. of measured clams:	total number of measured clams noted on the form.
Notes:	space provided for comments.

Directives related to the form – Common Razor Clam (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the first cell according to the following codification:	
	Magdalen Islands:	1
	Gaspé:	2
	North Shore :	3
	The fishing ground is noted in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	standard dredge (boat)	DRB
	hydraulic dredge (without a conveyor)	DHY
	hydraulic dredge (with a conveyor)	DHYC
	manually picked	CMA
Total no. of tows/pans:	total number of tows or of collected pans at the time of picking, corresponding to the landing.	

No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of clams selected from the catch according exclusively to commercial criteria.
Sampled cat.:	code of the commercial category sampled:

unsorted:	0
very small:	1
small:	2
medium:	3
large:	4
very large:	5
others (to be described in the notes):	9

Cat. weight:	total weight, in kilograms, of the category from which the sampled clams have been selected.
Sample weight:	total weight, at the nearest 0.1 kilogram, of all the measured clams noted on the form. The value can be exact or estimated.
Length:	the maximal anteroposterior length of the shell measured according to the procedures.
Count:	for each measured clam, draw a vertical line (|) in the space corresponding to the shell length.
Total:	total number of measured clams for each length-class.
No. of measured clams:	total number of measured clams noted on the form.
Notes:	space provided for comments.

Type of measurement for Common Razor Clam sampling.

COMMON RAZOR CLAM

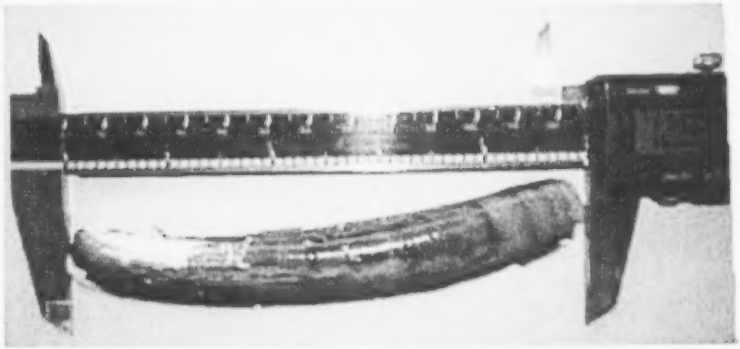


Photo: S. Hurtubise

HYAS CRAB CODE: 2521 (*H. araneus*) 2527 (*H. coarctatus*)	 *Hyas araneus* Photo: A. Chevrier
Fishing zone:	**12 to CN-4**
Sampling protocol:	**at-sea**
PROCEDURES	
USE: **at-sea:**	Complete the form according to the related directives. Change form after each sampled pot.
SELECT: **at-sea:**	All the crabs from a pot for as many pots as possible per trip.
SEX: **at-sea:**	Yes.
MEASURE: **at-sea:**	1. the carapace maximal width for males and females and round to the nearest 1.0 mm. 2. the right claw maximal height for males only and round to the nearest 0.1 mm. If the right claw is missing, use the left claw.
COLLECT:	No.
PRESERVE:	No.

HYAS CRAB CODE: 2521 (*H. araneus*) 2527 (*H. coarctatus*)	 *Hyas araneus* Photo: A. Chevrier
Fishing zone:	**12 to CN-4**
Sampling protocol:	**port**

PROCEDURES

USE:	
port:	Complete the form according to the related directives.
SELECT:	
port:	Select randomly around 150 crabs from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of crabs to sample by category is defined by the following rule: 150 crabs ÷ by the number of categories = the number of crabs to measure by category.
SEX:	
port:	No.
MEASURE:	
port:	1. the weight of each male only and round to the nearest 1.0 g. 2. the carapace maximal width for males only and round to the nearest 1.0 mm. 3. the right claw maximal height for males only and round to the nearest 1.0 mm. If the right claw is missing, use the left claw.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Hyas Crab (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone ground:	the fishing zone in the first three cells. The fishing ground is noted in and in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Gear:	code of the type of pot used by the fisher.	
Mesh size:	size, in millimeters, of the stretched mesh of the pot.	
Seq. no. of the pot	sequential number of the pot haul, as determined by the fisher.	
Depth:	depth, in meters, of the fishing site where the pot was soaked.	
Soaking time	number of days, at the nearest 0.1 day, during which the pot was soaked.	
Fishing site:	position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.	

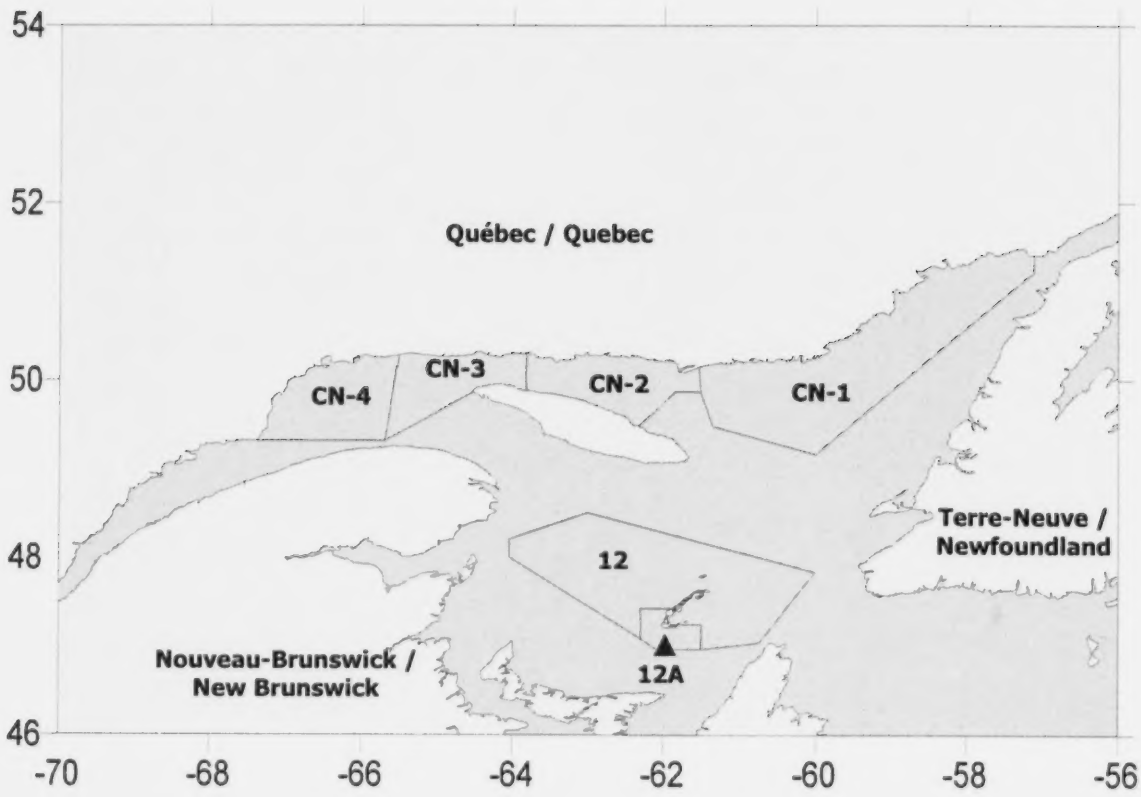
Sex:	sex of the measured crabs. Note the sex as follows: M: male F: female		
Carapace width	carapace maximal width measured according to the procedures.		
Claw height	claw maximal height measured according to the procedures.		
Carapace condition:	(1)	Clean:	immaculated exoskeleton, carapace with no epibiont, iridescent claws.
	(2)	Intermediate:	hard exoskeleton slightly marked with scars, presence of small epibionts on the carapace, claws more or less iridescent.
	(3)	Dirty:	exoskeleton dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws.
Species:	write **A** if Hyas araneus or **V** if Hyas coarctatus.		
Missing legs:	status of legs according to the codification presented below with respect to the sequence. NB leave blank if no leg is missing, regenerated or broken by handling. M: missing R: regenerated C: broken by handling		
Maturity stages	maturity stage of females, eggs development as well as clutch status.		
Notes:	space provided for comments.		

Directives related to the form – Hyas Crab (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The remaining cells are left blank	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Community code	code of the community where the crab was landed.	
Gear:	code of the gear used by the fisher.	
Mesh size:	average size, in millimeters, of the stretched mesh for the sampled pots.	
Depth:	average depth, in meters, of all the fishing sites where the pots were soaked.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of crabs selected from the catch according exclusively to commercial criteria.	

Sampled cat.:	code of the commercial category sampled:		
	unsorted:	0	
	very small:	1	
	small:	2	
	medium:	3	
	large:	4	
	very large:	5	
	others (to be described in the notes):	9	
Cat. weight:	total weight, in kilograms, of the category from which the sampled crabs have been selected.		
Weight:	weight, in grams, for each male only.		
Carapace width	carapace maximal width measured according to the procedures.		
Claw height	claw maximal height measured according to the procedures.		
Carapace condition:	(1)	Clean:	immaculated exoskeleton, carapace with no epibiont, iridescent claws.
	(2)	Intermediate:	hard exoskeleton slightly marked with scars, presence of small epibionts on the carapace, claws more or less iridescent.
	(3)	Dirty:	exoskeleton dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws.
Species:	write **A** if Hyas araneus or **V** if Hyas coarctatus.		
Missing legs:	status of legs according to the codification presented below with respect to the sequence.		
	NB leave blank if no leg is missing, regenerated or broken by handling.		
	M: missing	R: regenerated	C: broken by handling
Notes:	space provided for comments.		

Hyas Crab fishing zones.



ROCK CRAB

CODE: 2513

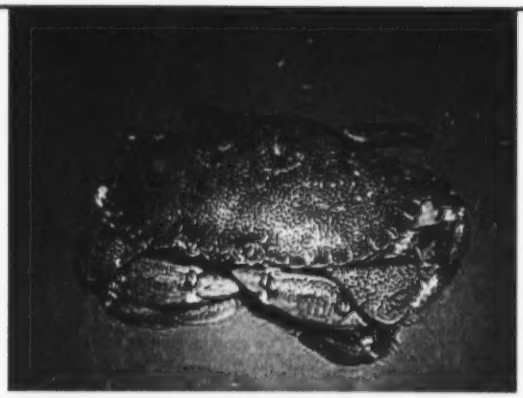


Photo: S.Hurtubise

Fishing zone:	**12A to 17C**
Sampling protocol:	**at-sea or port sampling**

PROCEDURES

USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled pot.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	All the crabs of a pot for as many pots as possible per trip.
port:	Select randomly around 150 crabs from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of crabs to sample by category is defined by the following rule: 150 crabs ÷ by the number of categories = the number of crabs to measure by category.
SEX:	
at-sea:	Yes.
port:	No.
MEASURE:	The maximal width of the carapace (spine to spine) using a modified vernier caliper (with plates). Round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Rock Crab (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone ground:	the fishing zone in the first three cells. The fishing ground is noted in and in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Community code	code of the community where the crab was landed.	
Sling seq. no.	sequential number of the sling, as determined by the fisher.	
or		
Fishing area no.	note the fishing area code associated with the sampled site. NB The fishing area number is used for all the catching techniques other than the sling.	
Soaking time	number of days during which the pot was soaked.	
Fishing site:	position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.	
Pot no.:	sequential number of the pot, as determined by the fisher.	

Pot type: code for the type of pot:

(1) standard wooden pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 50 cm.

(2) standard metal pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 50 cm.

(3) standard plasticized composite pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 50 cm.

(4) conical pot, rock crab.

(5) wooden pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 42 cm.

(6) wooden pot of which the length, the width and the height are respectively of 124 cm x 92 cm x 50 cm. This pot is characterized by the presence of two parlours.

(9) others (to be described in the notes).

Activity code CA / CR: for each hauled pot (CA) and each measured crab (CR), note:

CA:

S: standard pot (with no anomaly).

P: lost pot.

B: blocked pot.

D: defective pot.

CR:

M: crabs present in the pot and measured.

N: crabs present in the pot but not measured.

A: no crab in the pot.

Width: carapace maximal width measured according to the described procedures.

Sex: sex of the measured crab. Note in the following way:

M: male F: female

Eggs: note the presence or absence of eggs for females in the following way:

0: absence of eggs

1: presence of eggs

Carapace condition: (1) carapace still soft at the abdomen level, although the dorsal surface is hard, walking legs still soft and cracking but hardened claws.

(2) hard crab with a recent carapace, clean and iridescent, white abdomen, no epiphyte, very sharp dactyls.

(3) hard crab with a drab carapace, yellowed abdomen and rounded dactyls.

(4) hard crab, drab carapace covered with algae and hydrozoa, yellow-beige abdomen with a dirty aspect and dactyls end used and blackened.

NB The conditions 1 and 2 are associated with crabs having moulted in the current year.

No. of measured crabs: total number of measured crabs noted on the form.

Notes: space provided for comments.

Directives related to the form – Rock Crab (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The remaining cells are left blank	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Community code	code of the community where the crab was landed.	
Gear:	code of the fishing gear used by the fisher.	
Total no. of pots	approximation of the total number of hauled pots corresponding to the landing.	
No. of pots per sling/area:	average number of pots per sling or per fishing area.	
Soaking time	average number of days during which all the pots were soaked.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of crabs selected from the catch according exclusively to commercial criteria.	

Sampled cat.: code of the commercial category sampled:

unsorted:	0
very small:	1
small:	2
medium:	3
large:	4
very large:	5
others (to be described in the notes):	9

Cat. weight: total weight, in kilograms, of the category from which the sampled crabs have been selected.

Sample weight: total weight, in kilograms, of all the measured crabs noted on the form. The value can be exact or estimated.

Width: carapace maximal width measured according to the described procedures.

Carapace condition:

(1) carapace still soft at the abdomen level, although the dorsal surface is hard, walking legs still soft and cracking but hardened claws.

(2) hard crab with a recent carapace, clean and iridescent, white abdomen, no epiphyte, very sharp dactyls.

(3) hard crab with a drab carapace, yellowed abdomen and rounded dactyls.

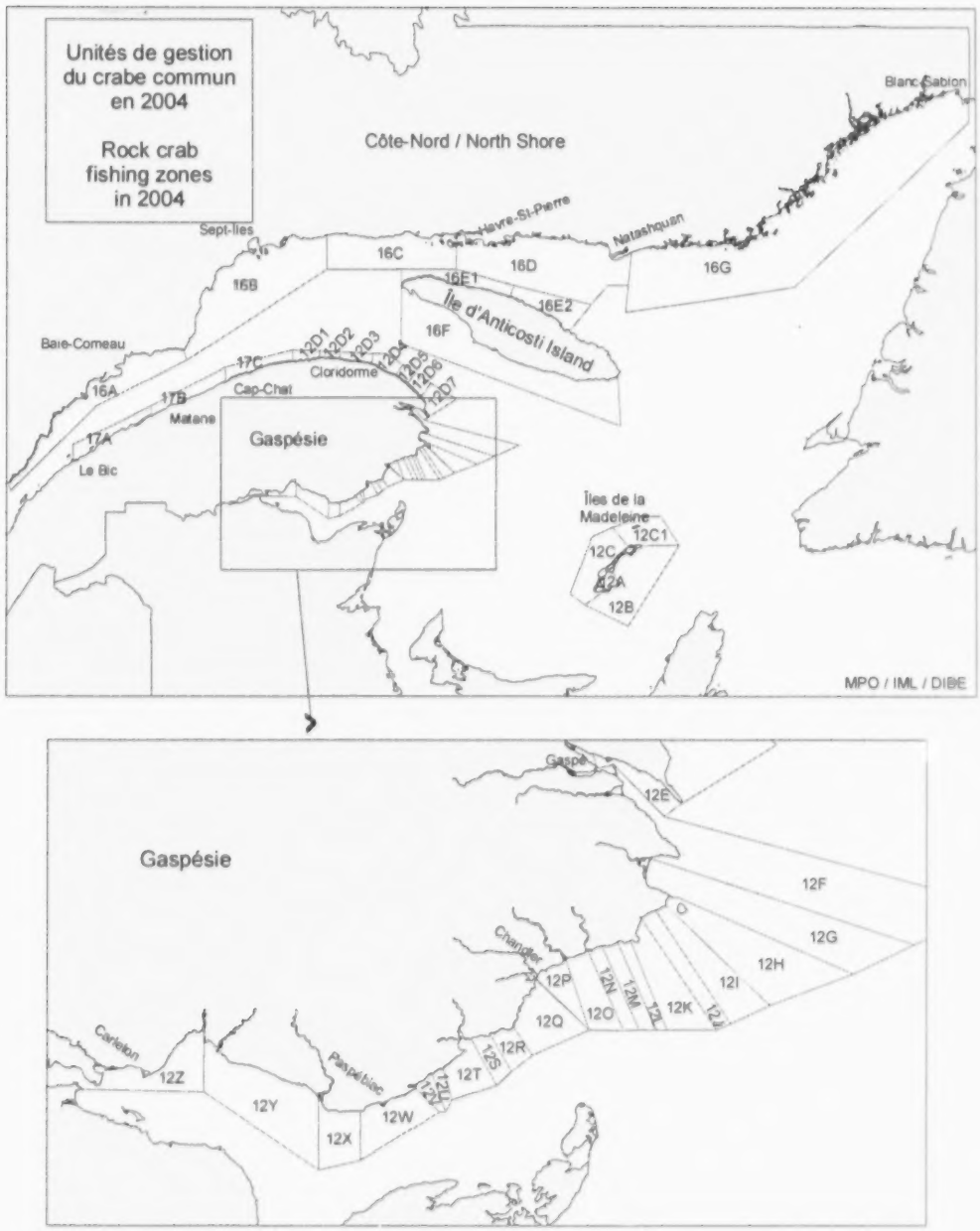
(4) hard crab, drab carapace covered with algae and hydrozoa, yellow-beige abdomen with a dirty aspect and dactyls end used and blackened.

NB The conditions 1 and 2 are associated with crabs having moulted in the current year.

No. of measured crabs: total number of measured crabs noted on the form.

Notes: space provided for comments.

Rock Crab fishing zones.



Community codes

Codes	Descriptions	Codes	Descriptions
1	Anse-à-Brillant	39	Pointe-Basse
2	Anse-à-Valleau	40	Port-Cartier
3	Baie-Comeau	41	Port-Daniel
4	Baie-Trinité	42	Rivière-Portneuf
5	Blanc Sablon	43	Rimouski
6	Bonaventure	44	Rivière-au-Renard
7	Brador	45	Rivière-au-Tonnerre
8	Cap-aux-Meules	46	Rivière-Madeleine
9	Cap-des-Rosiers	47	Rivière-Saint-Paul
10	Carleton	48	Ruisseau Chapados
11	Cloridorme	49	Sept-Îles
12	Étang-du-Nord	50	St-Georges-de-Malbaie
13	Gascons	51	St-Godefroi
14	Godbout	52	St-Joachim-de-Tourelle
15	Grande-Entrée	53	Ste-Anne-des-Monts
16	Grande-Rivière	54	Ste-Thérèse de Gaspé
17	Grande-Vallée	55	Tête-à-la-Baleine
18	Grosse Île	56	Vieux-fort
19	Harrington	57	Pointe Sud (Île d'Anticosti)
20	Havre-Aubert	58	Baie du Renard (Île d'Anticosti)
21	Havre-aux-Maisons	59	Miguasha
22	Havre-Saint-Pierre	60	Sandy Beach (Gaspé)
23	Île d'Entrée	61	Anse-à-Beaufils
24	Kégaska	62	Baie-Johan-Beetz
25	La Romaine	63	Chandler
26	La Tabatière	64	St-Siméon (Bonaventure)
27	Les Escoumins	65	Anse-au-Griffon
28	Les Méchins	66	New-Richmond
29	Matane	67	Rivière Caplan (Caplan)
30	Middle Bay	68	Ruisseau Leblanc (Caplan)
31	Millerand	69	Cap-Chat
32	Mingan	70	Caraquet
33	Mont-Louis	71	Shippagan
34	Natashquan	72	Lamèque
35	Newport	73	Port au Choix
36	Old Harry	74	Port Saunders
37	Paspébiac	75	Black Dove Cove
38	Pointe-au-Loup	76	Grande Grave

Fishing area codes

CODE	FISHING AREA
1	Belle Anse
2	Est de la Romaine
3	L'île to Godi aux îles to Gode
4	L'île du Grand Rigolet
5	Ouest de la Romaine
6	Est de Tête-à-la-Baleine
7	Tête-à-la-Baleine
8	Baie du Renard (Île d'Anticosti)
9	Ouest de Baie des Moutons
15	Baie Plaisance
16	St-Georges-de-Malbaie
30	Bonaventure
31	Maria-Carleton*
32	Carleton-St-Omer*
33	St-Omer-Miguasha
34	Grande-Rivière
35	Anse-au-Griffon
36	St-Maurice-de-l'Échouerie
37	Petit-Cap
38	Cap-des-Rosiers
39	Anse-à-Brillant
40	Rivière-au-Renard

Type of measurement for Rock Crab sampling.

ROCK CRAB

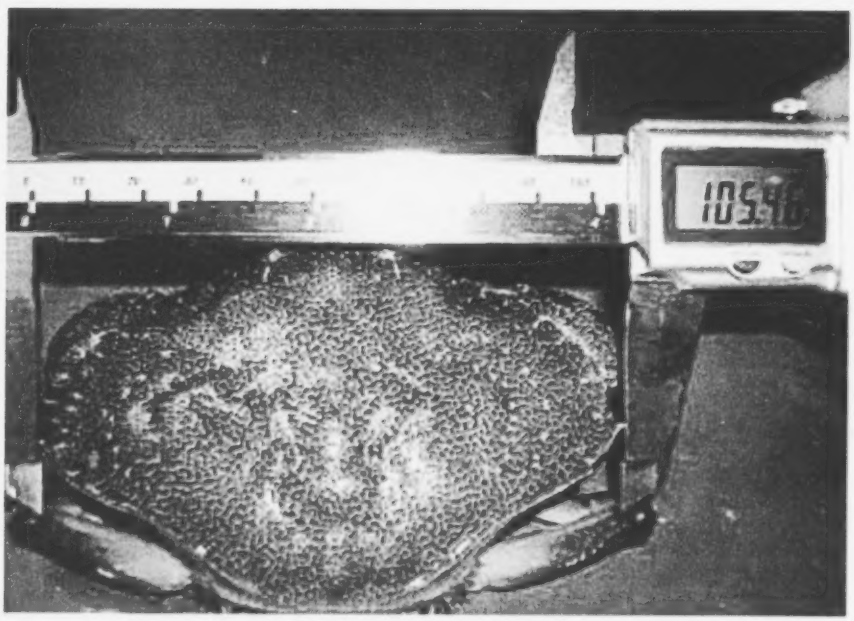
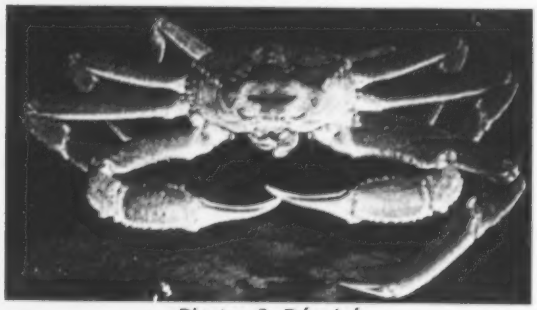
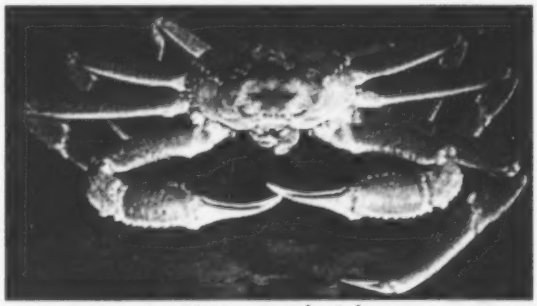


Photo: S. Hurtubise

SNOW CRAB CODE: 2526	 Photo: I. Bérubé
Fishing zone:	**12A to 17**
Sampling protocol:	**at-sea**

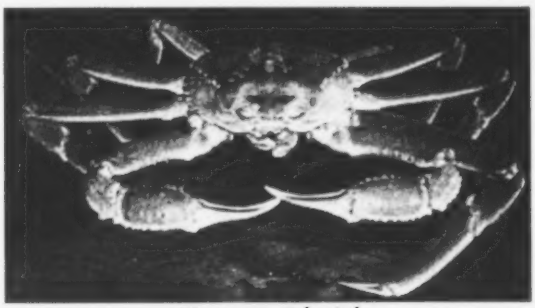
PROCEDURES

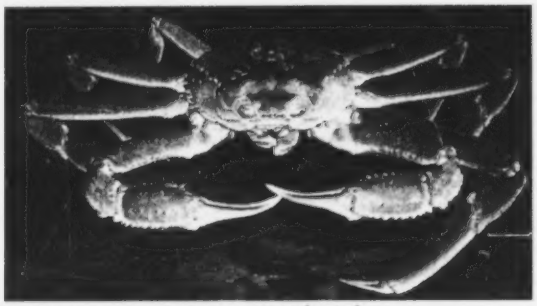
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled pot.
SELECT:	
at-sea:	All the crabs from a pot for as many pots as possible per trip.
SEX:	
at-sea:	Yes.
MEASURE:	
at-sea:	3. the carapace maximal width for males and females and round to the nearest 1.0 mm. 4. the right claw maximal height for males only and round to the nearest 0.1 mm. If the right claw is missing, use the left claw.
COLLECT:	No.
PRESERVE:	No.

SNOW CRAB CODE: 2526	 Photo: I. Bérubé
Fishing zone:	**12A to 17**
Sampling protocol:	**port**

PROCEDURES

USE:	
port:	Complete the form according to the related directives.
SELECT:	
port:	Select randomly around 150 crabs from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of crabs to sample by category is defined by the following rule: 150 crabs ÷ by the number of categories = the number of crabs to measure by category.
SEX:	
port:	No.
MEASURE:	
port:	4. the weight of each male only and round to the nearest 1.0 g. 5. the carapace maximal width for males only and round to the nearest 1.0 mm. 6. the right claw maximal height for males only and round to the nearest 1.0 mm. If the right claw is missing, use the left claw.
COLLECT:	No.
PRESERVE:	No.

SNOW CRAB CODE: 2526	 Photo: I. Bérubé
Fishing zone:	**12**
Sampling protocol:	**at-sea**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled pot.
SELECT:	
at-sea:	A total of 40 males and 10 females by pot for as many pots as possible per trip.
SEX:	
at-sea:	Yes.
MEASURE:	
at-sea:	1. the carapace maximal width for males and females using a modified vernier caliper (with plates). Round to the nearest 1.0 mm. 2. the right claw maximal height for males only using a modified vernier caliper (with plates). Round to the nearest 0.1 mm. If the right claw is missing, use the left claw.
COLLECT:	No.
PRESERVE:	No.

SNOW CRAB CODE: 2526	 Photo: I. Bérubé
Fishing zone:	**12**
Sampling protocol:	**port**

PROCEDURES	
USE:	
port:	Complete the form according to the related directives.
SELECT:	
port:	Select randomly around 250 crabs from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of crabs to sample by category is defined by the following rule: 250 crabs ÷ by the number of categories = the number of crabs to measure by category.
SEX:	
port:	No.
MEASURE:	
port:	1. the weight of each male only and round to the nearest 1.0 g. 2. the carapace maximal width for males only using a modified vernier caliper (with plates). Round to the nearest 0.1 mm. 3. the right claw maximal height for males only using a modified vernier caliper (with plates). Round to the nearest 0.1 mm. If the right claw is missing, use the left claw.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Snow Crab (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone ground:	the fishing zone in the first three cells. The fishing ground is noted in and in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Gear:	code of the type of pot used by the fisher.	
Mesh size:	size, in millimeters, of the stretched mesh of the pot.	
Seq. no. of the pot	sequential number of the pot haul, as determined by the fisher.	
Depth:	depth, in meters, of the fishing site where the pot was soaked.	
Soaking time	number of days, at the nearest 0.1 day, during which the pot was soaked.	
Fishing site:	position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.	

Count:	total number of males present in the pot less the number of measured males. NB this section applies only to zone 12.		
Sex:	sex of the measured crabs. Note the sex in the following way: M: male F: female		
Carapace width	carapace maximal width measured according to the procedures.		
Claw height	claw maximal height measured according to the procedures.		
Carapace condition:	(1)	Clean and soft:	soft and immaculated exoskeleton, carapace with no epibiont, iridescent claws. Approximate age of the carapace if in terminal molt, 0 - 5 months.
	(2)	Clean and hard:	hard and immaculated exoskeleton, carapace with no epibiont, iridescent claws. Approximate age of the carapace if in terminal molt, 5 months - 1 year.
	(3)	Intermediate:	hard exoskeleton slightly marked with scars, presence of small epibionts on the carapace, claws more or less iridescent. Approximate age of the carapace if in terminal molt, 8 months - 3 years.
	(4)	Dirty and hard:	exoskeleton hard, dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws. Approximate age of the carapace if in terminal molt, 2 - 5 years.
	(5)	Dirty and soft:	soft exoskeleton, dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws. Approximate age of the carapace if in terminal molt, 4 - 6 years.
Durometer:	reading of the durometer used on the right claw of the males only.		

Missing legs:	status of legs according to the codification presented below with respect to the sequence. NB leave blank if no leg is missing, regenerated or broken by handling. M: missing R: regenerated C: broken by handling
Maturity stages	maturity stage of females, eggs development as well as clutch status.
Notes:	space provided for comments.

Directives related to the form – Snow Crab (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The remaining cells are left blank	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Community code	code of the community where the crab was landed.	
Gear:	code of the gear used by the fisher.	
Mesh size:	average size, in millimeters, of the stretched mesh for the sampled pots.	
Depth:	average depth, in meters, of all the fishing sites where the pots were soaked.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of crabs selected from the catch according exclusively to commercial criteria.	

Sampled cat.:	code of the commercial category sampled:		
	unsorted:	0	
	very small:	1	
	small:	2	
	medium:	3	
	large:	4	
	very large:	5	
	others (to be described in the notes):	9	
Cat. weight:	total weight, in kilograms, of the category from which the sampled crabs have been selected.		
Weight:	weight, in grams, for each male only.		
Carapace width	carapace maximal width measured according to the procedures.		
Claw height	claw maximal height measured according to the procedures.		
Carapace condition:	(1)	Clean and soft:	soft and immaculated exoskeleton, carapace with no epibiont, iridescent claws. Approximate age of the carapace if in terminal molt, 0 - 5 months.
	(2)	Clean and hard:	hard and immaculated exoskeleton, carapace with no epibiont, iridescent claws. Approximate age of the carapace if in terminal molt, 5 months - 1 year.
	(3)	Intermediate:	hard exoskeleton slightly marked with scars, presence of small epibionts on the carapace, claws more or less iridescent. Approximate age of the carapace if in terminal molt, 8 months - 3 years.
	(4)	Dirty and hard:	exoskeleton hard, dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws. Approximate age of the carapace if in terminal molt, 2 - 5 years.
	(5)	Dirty and soft:	soft exoskeleton, dirty, marked with scars, important presence of bryozoans and/or epibionts on the carapace, drab claws. Approximate age of the carapace if in terminal molt, 4 - 6 years.
Durometer:	reading of the durometer used on the right claw of the males only.		

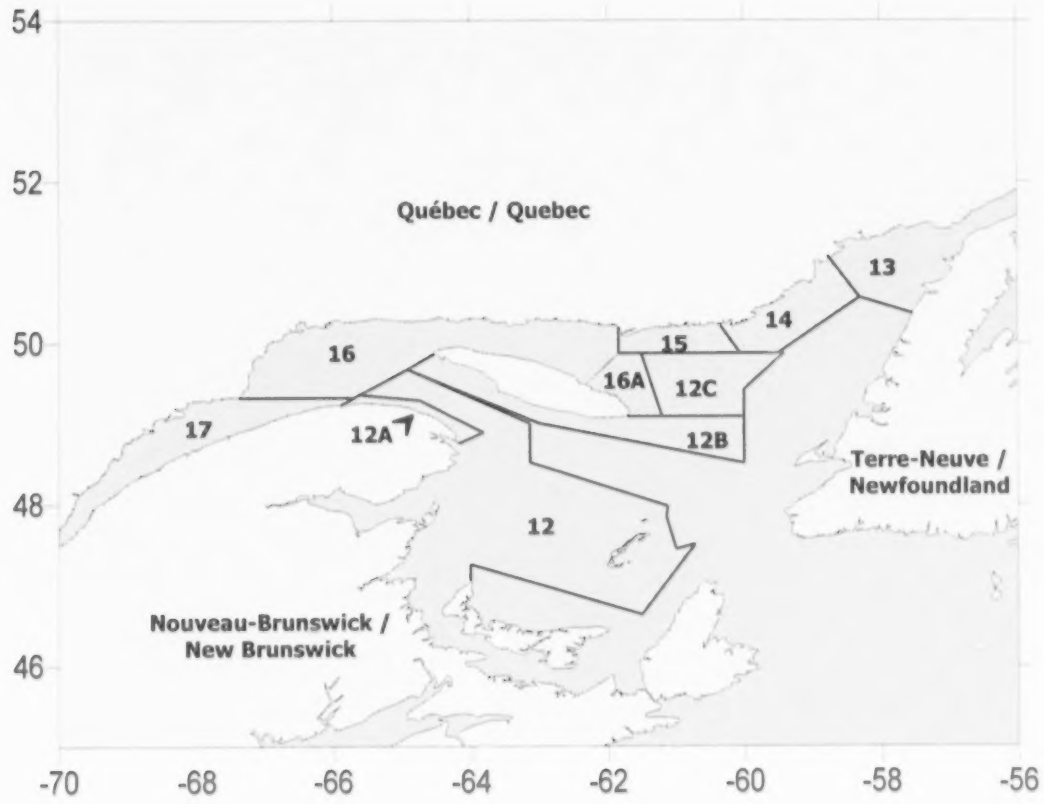
Missing legs: status of legs according to the codification presented below with respect to the sequence.

NB leave blank if no leg is missing, regenerated or broken by handling.

M: missing R: regenerated C: broken by handling

Notes: space provided for comments.

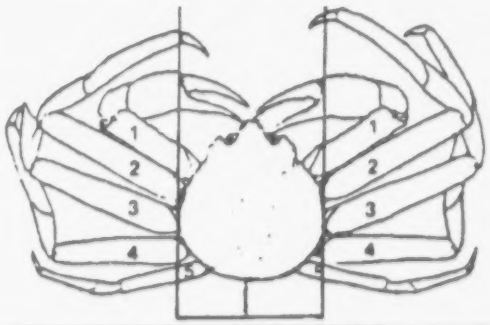
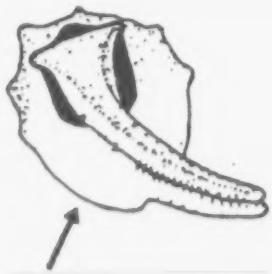
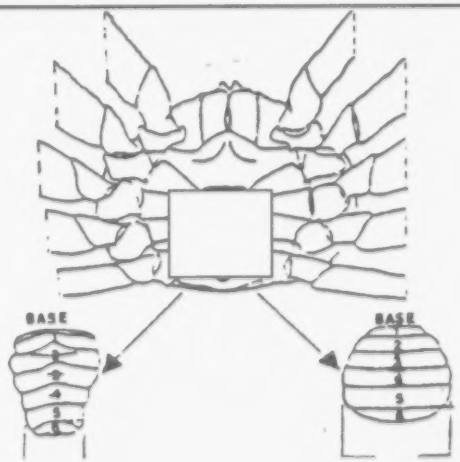
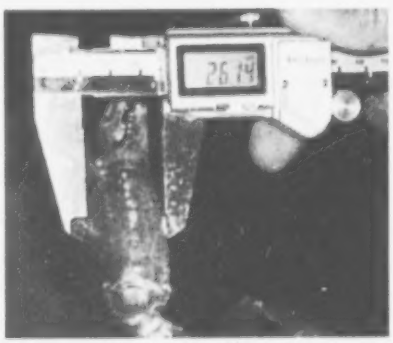
Snow Crab fishing zones.



Pot codes, Hyas Crab or Snow Crab.

CODE	POTS
FPO	Unspecified
FPOA	Pyramidal 6', 2 cones
FPOB	Pyramidal 6', 4 cones
FPOC	Conical 6', 2 cones
FPOD	Conical 6', 4 cones
FPOE	Conical 8', 2 cones
FPOF	Conical 8', 4 cones
FPOG	Japanese 4'
FPOH	Rectangular 5'x 5'
FPOI	Rectangular 6'x 6'
FPOJ	Nordik 99
FPOK	Conical 5'
FPOL	Conical 6'
FPOM	Conical 7', 1 cone
FPON	Conical 7', 2 cones
FPOO	Igloo 6'
FPOP	Conical (high-cone) D=105 cm, d=81 cm H=86.4 cm
FPOQ	Conical 6.5', 1 cone
FPOR	Conical 6.5', 2 cones
FPOS	Conical 6.5', 4 cones
FPOZ	Mixed and others

Parameters used for Hyas Crab or Snow Crab sampling.

CARAPACE WIDTH	DUROMETER (front view of the claw)
 left right Sequence to follow for missing and/or regenerated legs	 Pressure point
ABDOMEN ILLUSTRATION OF THE MALE AND THE FEMALE	**HEIGHT OF THE RIGHT CLAW**
 **male** **female**	 Photo: A. Chevrier

Maturity stages for females, Hyas Crab or Snow Crab.

MATURITY FOR FEMALES	EGG DEVELOPMENT	CLUTCH STATUS
1: immature	1: light orange	C: complete
2: primiparous	2: dark orange	I: incomplete
3: multiparous	3: black	
	4: empty cases	
	0: no egg	

IMMATURE:	very small female with no egg. The abdomen is not covering the whole legs' area. The gonopores (2 openings below the abdomen leading to the spermatic pores) are closed.
PRIMIPAROUS:	female with its first laying. Small female, with eggs. The carapace is smooth, with no organism. Traces of wear and grasp on the carapace.
MULTIPAROUS:	female having carried out more than one laying. Female of all sizes usually carrying eggs and having a worn carapace and traces of grasp.

NORTHERN SHRIMP CODE: 2210	 Photo: S. Hurtubise
Fishing zone:	**8 to 12**
Sampling protocol:	**at-sea or port sampling**
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the label according to the related directives. Each label in two copies, one inside the waxed carton and the other kept for ends of compilation.
SELECT:	
at-sea:	A maximum of 250 shrimps by tow for as many tows as possible per trip.
port:	3 kg of shrimps from the last tow of the trip.
SEX:	
at-sea:	Yes.
port:	No.
MEASURE:	
at-sea:	The maximal length of the cephalothorax and round to the nearest 0.1 mm.
port:	No.
COLLECT:	
at-sea:	No.
port:	3 kg of shrimps from the last tow of the trip.
PRESERVE:	
at-sea:	No.
port:	3 kg of shrimps frozen in waxed cartons labeled according to the instructions.

Directives related to the form – Northern Shrimp (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone ground:	the fishing zone in the first three cells. The fishing ground is noted in and in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Gear:	code of the gear used by the fisher.	
Mesh size:	size, in millimeters, of the net or codend stretched mesh according to the case.	
Seq. no. of the tow:	sequential number of the tow, as determined by the fisher.	
Depth:	depth, in meters, of the site where the gear has been fishing.	
Fishing effort:	effort according to the gear used. Example:	
	Shrimp trawl (TXS):	number of hours during which the trawl was effectively fishing for the sampled tow.
Catch weight:	total weight, in kilograms, of the sampled species catch (before discarding).	
Sample weight:	total weight, to the nearest 0.1 kilogram, of all the measured shrimps noted on the form. This value can be exact or estimated.	

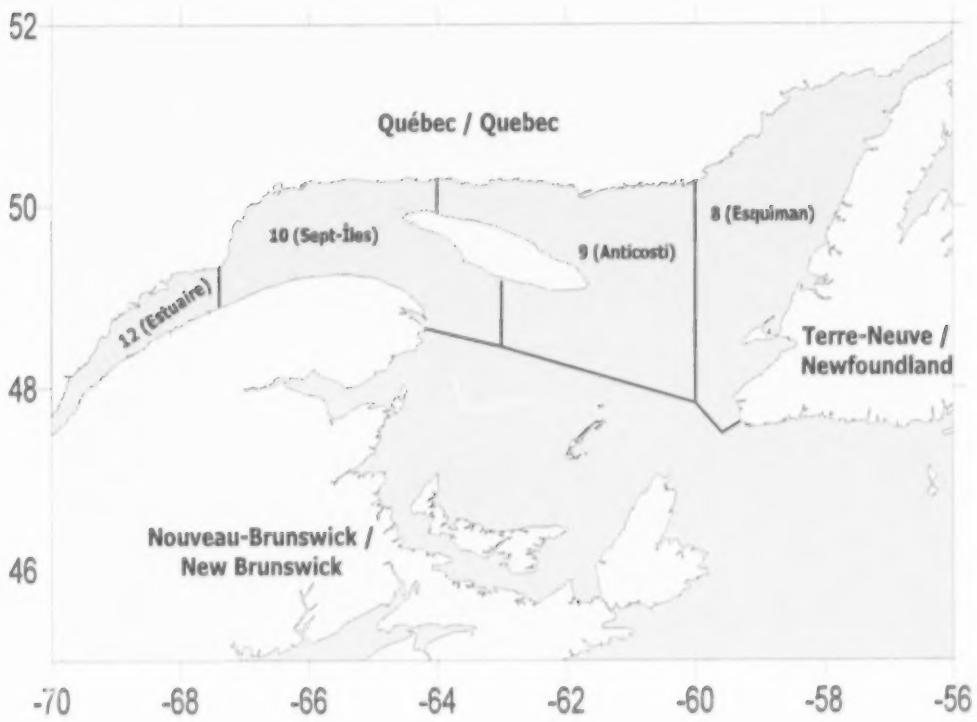
Fishing site:	position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Length:	the maximal cephalothorax length measured according to the procedures.
Count/Sex:	for each measured shrimp, draw a vertical line (|) in the space corresponding to the cephalothorax length and to the sex. Note the sex in the following way: M: male F: female
Total:	total number of measured shrimps for each length-class, per sex.
No. measured shrimp:	total number of measured shrimps noted on the form.
Notes:	space provided for comments.

Directives related to the label – Northern Shrimp (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground	the fishing zone in the first two cells. The fishing ground of the last tow is noted in the last four cells, when possible.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Gear:	code of the gear used by the fisher.	
Mesh size:	size, in millimeters, of the codend stretched mesh.	
Depth:	depth, in meters, of the last site where the gear has been fishing.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category refers to a quantity of shrimps selected from the catch according exclusively to commercial criteria.	

Sampled cat.:	code of the commercial category sampled:	
	unsorted:	0
	very small:	1
	small:	2
	medium:	3
	large:	4
	very large:	5
	others (to be described in the notes):	9
Cat. weight:	total weight, in kilograms, of the category from which the sampled shrimps have been selected.	

Northern Shrimp fishing zones.



Type of measurement used for Northern Shrimp sampling.

NORTHERN SHRIMP

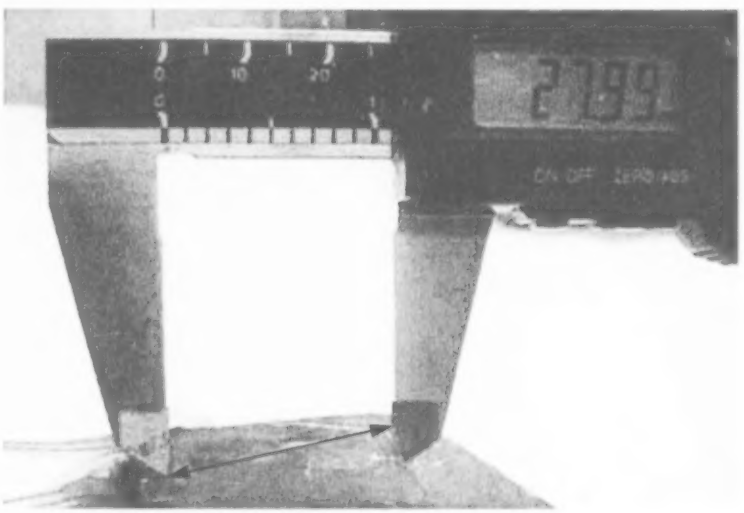
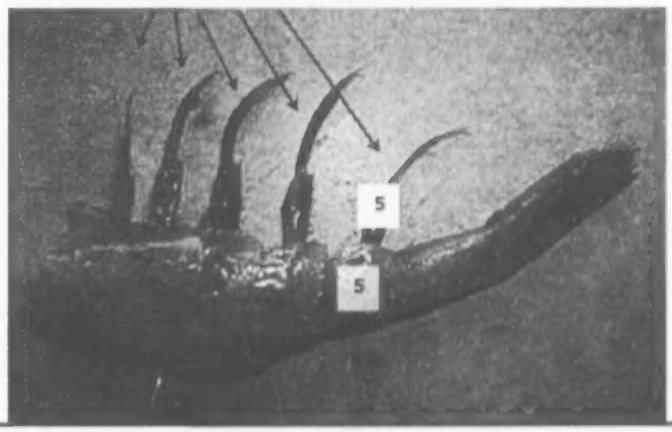


Photo: S. Hurtubise

Oblique cephalothorax length:
From the posterior part of the orbit eye to the posterior middorsal margin of the cephalothorax.

Illustrations of the Northern Shrimp sexual characteristics.

Pleopods



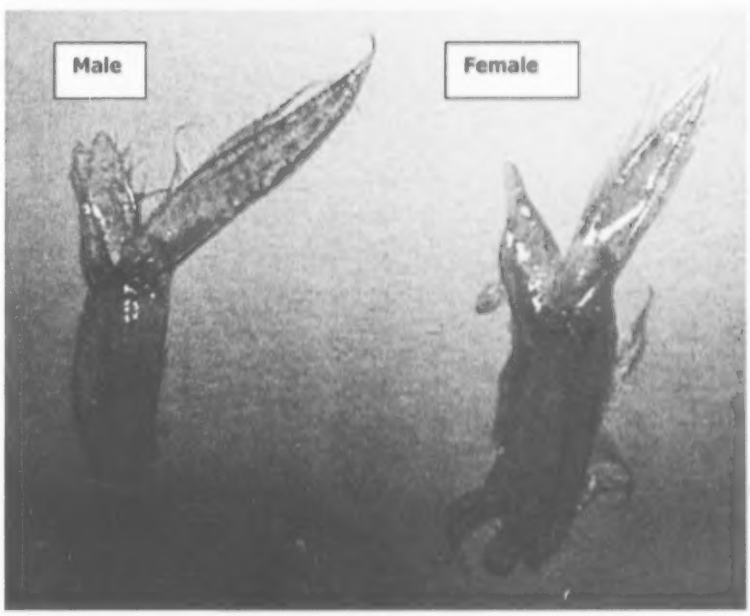
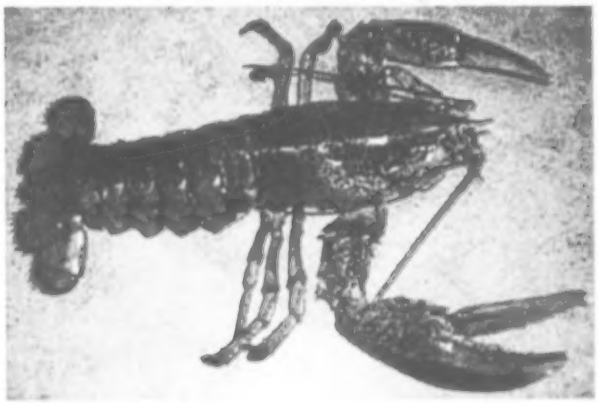


Photo: S. Hurtubise

AMERICAN LOBSTER CODE: 2550	 Photo: R. Morneau
Fishing zone:	**15A to 22**
Sampling protocol:	**at-sea or port sampling**

PROCEDURES

USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled sling.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	All the lobsters from a pot for as many pots as possible per trip.
port:	Select randomly around 250 lobsters from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of lobsters to sample by category is defined by the following rule: 250 lobsters ÷ by the number of categories = the number of lobsters to measure by category.
SEX:	Yes.
MEASURE:	The cephalothorax maximal length of the males and females and round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – American Lobster (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	Gaspé and North Shore:	zone in the first three cells. The fishing ground is noted in the last four cells.
	Magdalen Islands:	zone in the first two cells. The fishing ground is noted in the last four cells.
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Community code	code of the community where the lobster was landed.	
Period:	code for the period of the fishing season: D: start M: middle F: end	

Sling seq. no. — sequential number of the sling, as determined by the fisher.

or

Fishing area no. — note the fishing area code associated with the sampled site.

NB The fishing area number is used for all the catching techniques other than the sling.

Soaking time — number of days during which the pot was soaked.

Fishing site: — position of the sampled pot: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.

Pot no.: — sequential number of the pot, as determined by the fisher.

Pot type: — code for the type of pot:

(1) standard wooden pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 50 cm.

(2) standard metal pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 50 cm.

(3) standard plasticized composite pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 50 cm.

(4) conical pot, rock crab.

(5) wooden pot of which the length, the width and the height are respectively of 92 cm x 71 cm x 42 cm.

(6) wooden pot of which the length, the width and the height are respectively of 124 cm x 92 cm x 50 cm. This pot is characterized by the presence of two parlours.

(9) others (to be described in the notes).

Activity code C / H: — for each hauled pot (C) and each measured lobster (H), note:

C:

S: standard pot (with no anomaly).

P: lost pot.

B: blocked pot.

D: defective pot.

H:

M: lobsters present in the pot and measured.

N: lobsters present in the pot but not measured.

A: no lobster in the pot.

Length: — the cephalothorax maximal length measured according to the procedures.

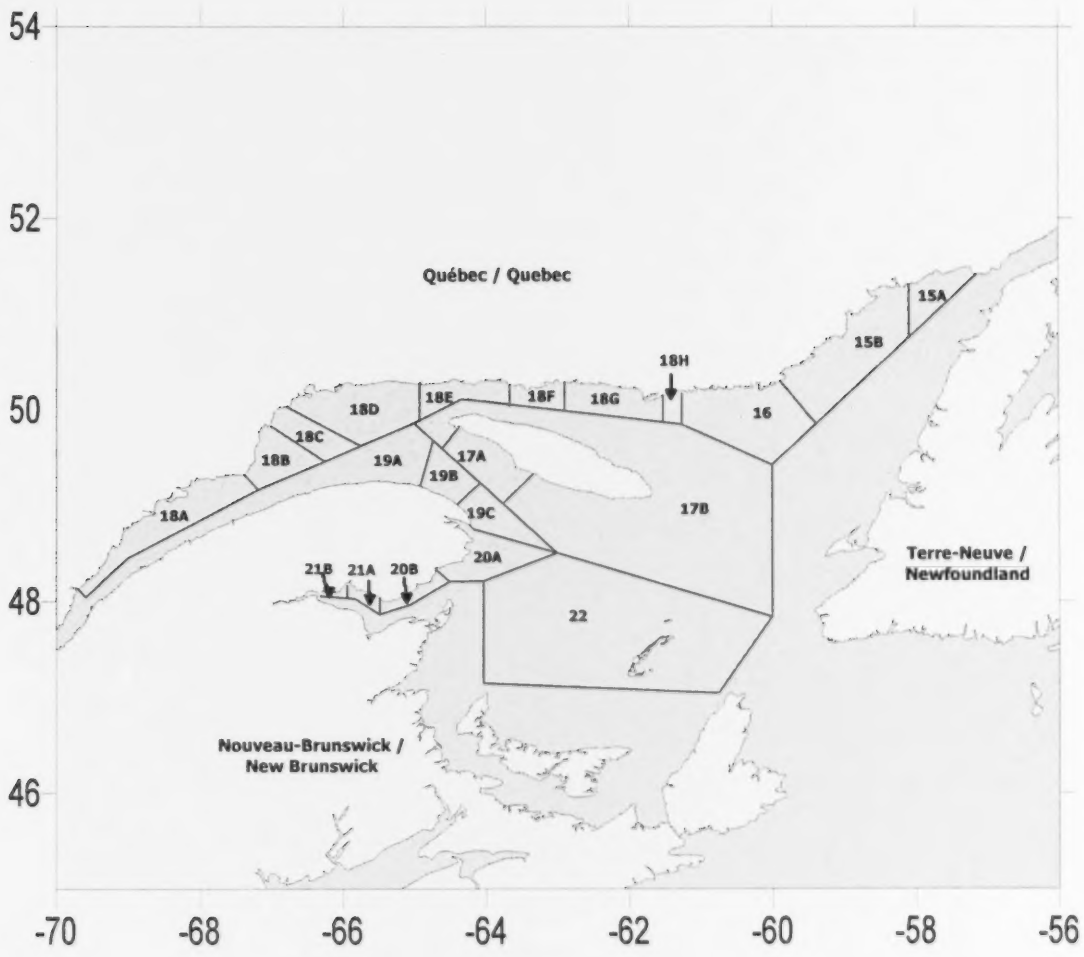
Sex:	sex of the measured lobsters. Note the sex in the following way: M: male F: female
Mat.:	maturity stage of the eggs.
V-notch:	the V-notch is a "V" shaped mark that fishers (in Gaspé only) do on the uropod of the egg-bearing females in order to identify these more easily the following year and to put back those lobsters again to water. This measurement aims at protecting the females that one knows as reproductive, to increase the quantity of eggs released in the environment. The presence of a V-notch is noted with the code 1.
No. measured lobsters:	total number of measured lobsters noted on the form.
Notes:	space provided for comments.

Directives related to the form – American Lobster (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The remaining cells are left blank	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Community code	code of the community where the lobster was landed.	
Gear:	code of the fishing gear used by the fisher.	
Total no. of pots	approximation of the total number of hauled pots corresponding to the landing.	
No. of pots per sling/area:	average number of pots by sling or by fishing area.	
Soaking time	average number of days during which all the pots were soaked.	

No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of lobsters selected from the catch according exclusively to commercial criteria.
Sampled cat.:	code of the commercial category sampled: unsorted: 0 very small: 1 canner: 2 market: 3 jumbo: 4 very large: 5 others (to be described in the notes): 9
Cat. weight:	total weight, in kilograms, of the category from which the sampled lobsters have been selected.
Sample weight:	total weight, in kilograms, of all the measured lobsters noted on the form. The value can be exact or estimated.
Length:	the cephalothorax maximal length measured according to the procedures.
Count/Sex	for each measured lobster, draw a vertical line (|) in the space corresponding to the cephalothorax length and to the sex. Note the sex in the following way: M: male F: female
Total:	total number of measured lobsters for each length-class, per sex.
No. measured lobsters:	total number of measured lobsters noted on the form.
Notes:	space provided for comments.

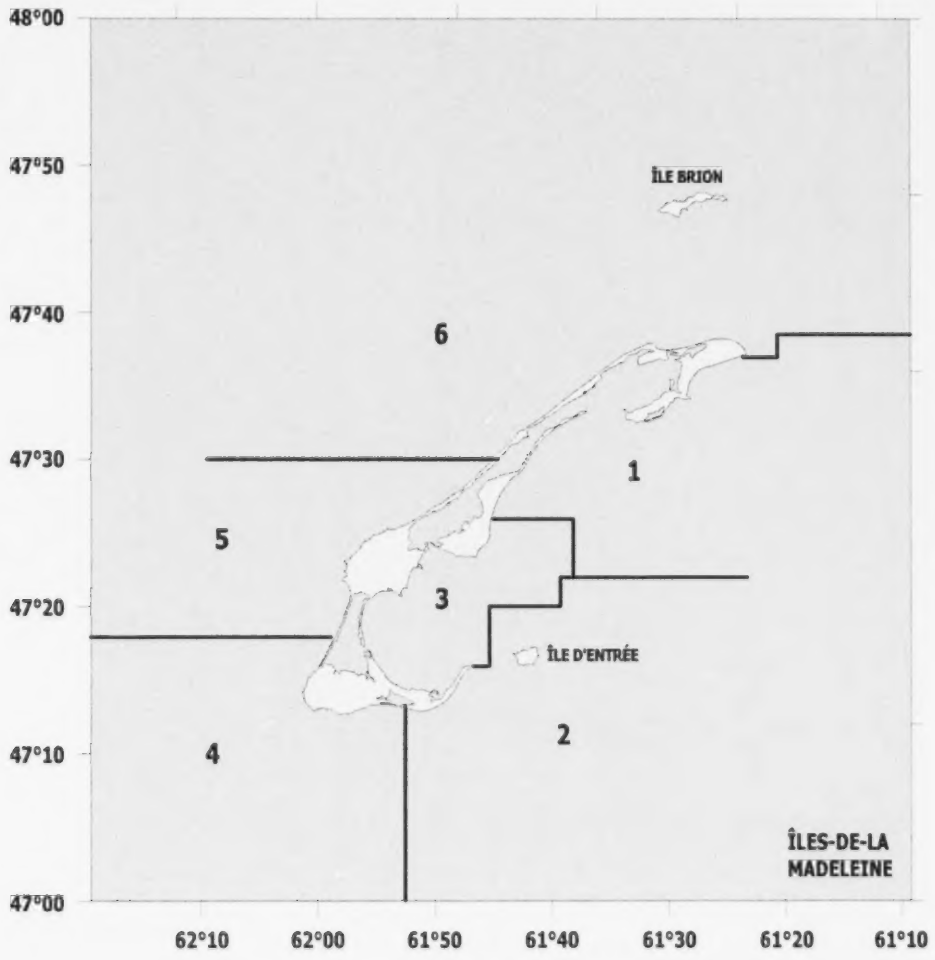
American Lobster fishing zones.



Description of the American Lobster fishing grounds (Gaspé).

FISHING GROUND	DESCRIPTION
17 A	From Port Menier wharf to Brick river (exploratory).
17 B	* From Brick river to the east and skirting Anticosti Island north shore up to Port Menier wharf.
19 A	From the east point of Orléans Island to Cap Blanc.
19 B	* From Cap Blanc to Cap Nord-Est.
19 C	* From Cap Nord-Est to Cap Gaspé.
20 A **1**	* From Cap Gaspé to the Gaspé's museum point.
20 A **2**	* From the Gaspé's museum point to Barachois river.
20 A **3**	* From Barachois river to Percé Rock's obelisk.
20 A **3a**	From the point of Cap Blanc to Cap Barré including Bonaventure Island.
20 A **4**	* From Percé Rock's obelisk to Bilodeau road.
20 A **5**	* From Bilodeau road to Anse-à-Beaufils wharf.
20 A **6**	* From Anse-à-Beaufils wharf to Legriec brook.
20 A **7**	* From Legriec brook to Ste-Thérèse wharf.
20 A **8**	* From Ste-Thérèse wharf to the western bound of Ste-Thérèse.
20 A **9**	From the eastern bound of Grande-Rivière to Grande-Rivière old wharf.
20 A **9a**	* From Grande-Rivière old wharf to Ste-Adélaïde bridge.
20 A **10**	* From Ste-Adélaïde bridge to Chandler bridge.
20 B **1**	* From Chandler bridge to Pointe-à-Maquereau.
20 B **2**	* From Pointe-à-Maquereau to Chapados brook.
20 B **3**	* From Chapados brook to iron old wharf road.
20 B **4**	* From iron old wharf road to point aux loups marins (Assels wharf road).
20 B **5**	* From point aux loups marins (Assels wharf) to Robinson silo (Shigawake).
20 B **6**	From Shigawake municipal dump road to Debbie Hall's house.
20 B **7**	From Medar Chapados house to New-Carlisle iron wharf.
20 B **8**	* From New-Carlisle iron wharf to Bonaventure wharf.
21 A	* From Bonaventure wharf to Cascapédia river bridge.
21 B	* From Cascapédia river bridge to Pointe-à-la-Garde church (Harrisson brook).
	*** Location included in the ground's limit.**

American Lobster fishing grounds (Magdalen Islands).



Type of measurement used for American Lobster sampling.

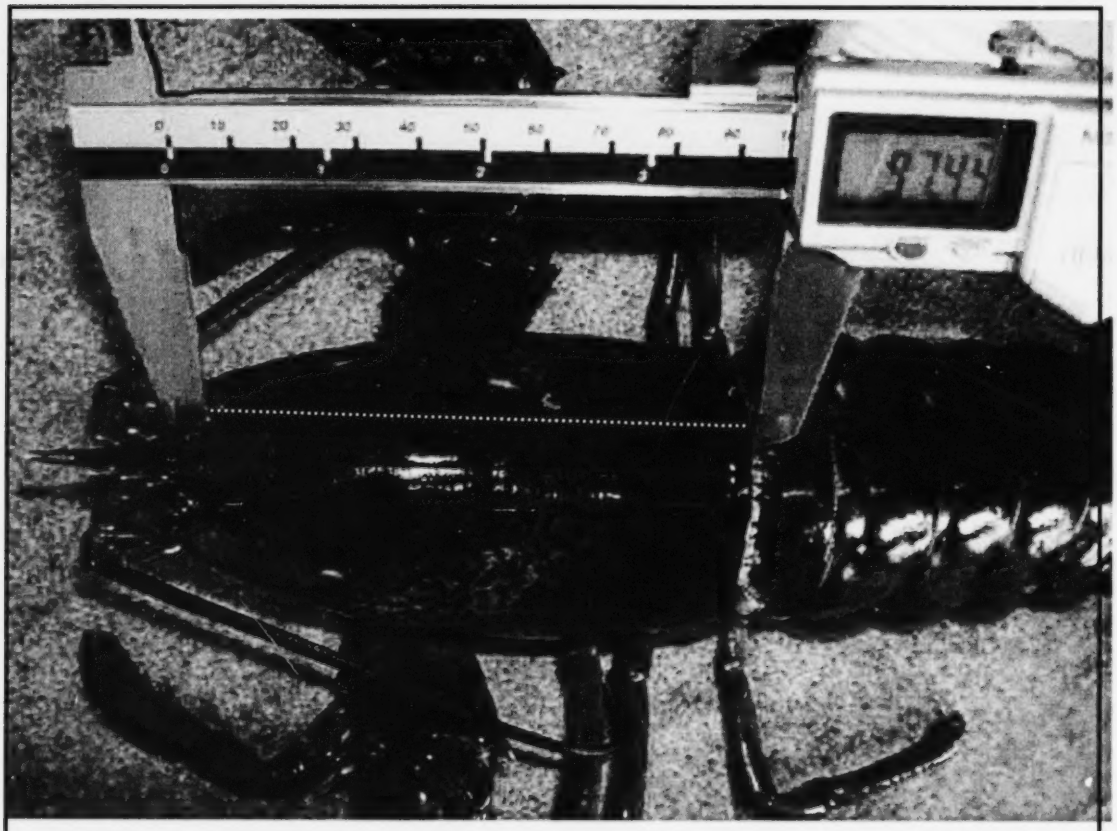


Photo: R. Morneau

——————— middorsal line

Cephalothorax length:
always measure the same side, from the eye socket to the posterior edge of the cephalothorax, parallel to the middorsal line.

Illustrations of the American Lobster sexual characteristics.

MALE	FEMALE
larger claw and narrow tail	narrower claw and large tail

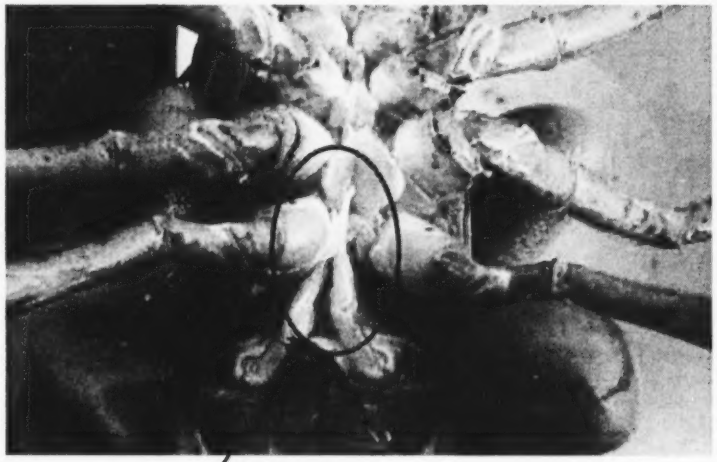
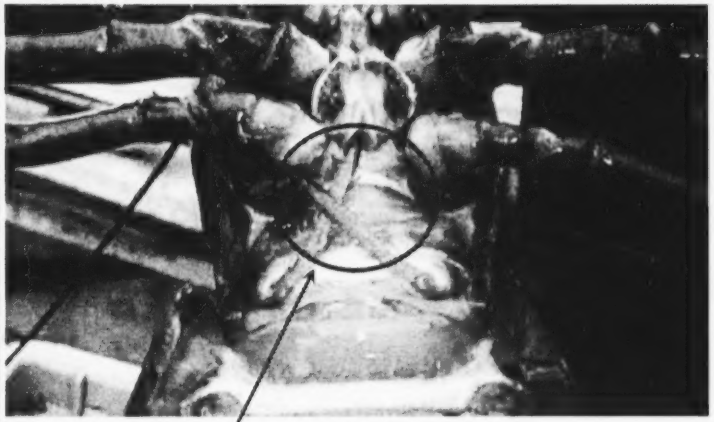
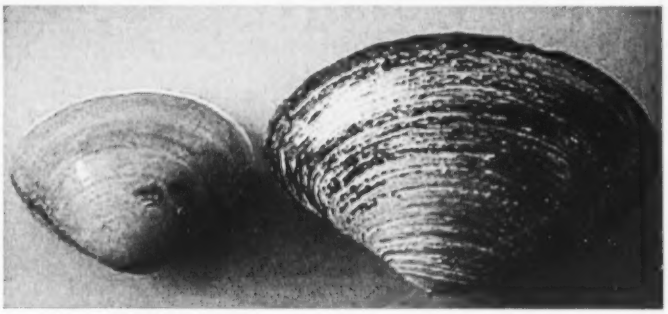

	

Photo: Y. Dufresne	Photo: Y. Dufresne
1st swimming hard legs	1st swimming soft legs

American Lobster egg maturity stages.

STAGE	DESCRIPTION
0	No egg.
1	The eggs are uniform and spherical, with an average diameter of 1.0 to 1.5 mm. Their colouring is black coal. They just have been laid.
2	The eggs are spherical or slightly ovoid with an average diameter of 1.5 mm by 1.7 mm. Their colouring varies from olive green to dark green. Towards the end of stage 2, the embryo becomes visible as is the milky green-blue disk at the animal pole.
3	The eggs are now ovoid with an average diameter of 2.0 mm by 2.3 mm. Their colouring is lighter than the other stages (beige, pink, orange, yellow). The embryo completely fills the egg and the eyes are visible. At the appearance of the criteria of stages 2 and 3, you mentally fix a limit which you will respect thereafter. It is not important to differentiate precisely the stages 2 and 3, it is a subjective data. On the other hand, the stage 1 is definitely distinguishable.
9	Undefined.

SURF CLAM SP CODE: Atlantic **4317** Stimpson **4355**	 Atlantic Stimpson Photo: S. Hurtubise
PROCEDURES	
USE:	
at-sea:	Complete the form according to the related directives. Change form after each sampled tow.
port:	Complete the form according to the related directives.
SELECT:	
at-sea:	A maximum of 150 clams by tow for as many tows as possible per trip.
port:	Select randomly around 150 clams from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of clams to sample by category is defined by the following rule: 150 clams ÷ by the number of categories = the number of clams to measure by category.
SEX:	No.
MEASURE:	The shell maximal anteroposterior length and round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Surf Clam sp. (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone ground:	the fishing zone in the first three cells. The fishing ground is noted in and in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	manually picked	CMA
	hydraulic dredge	DHY
Total no. of tows:	total number of tows corresponding to the landing.	
Total width of the dredge:	total width of a dredge multiplied by the total number of used dredges and round to the nearest 0.1 m.	
Seq. no. of tow:	sequential number of the tow, as determined by the fisher.	
Depth:	depth, in meters, of the site where the gear has been fishing.	
Tow duration:	number of minutes during which the sampled dredge was fishing.	
Tow weight:	total weight, in kilograms, of the tow (before discarding) for the sampled species.	
Sampled fraction of tow:	sampled fraction, in percent, of the tow. NB a tow may be done with more than one dredge.	

Fishing site:	position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Length:	shell anteroposterior length measured according to the procedures.
Count:	for each measured clam, draw a vertical line (|) in the space corresponding to the length of the shell.
Total:	total number of shells measured for each length-class.
No. measured clams:	total number of measured clams noted on the form.
No. smashed clams:	total number of smashed clams in the sample that could not be measured.
Notes:	space provided for comments.

Directives related to the form – Surf Clam sp. (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The remaining cells are left blank.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	manually picked	CMA
	hydraulic dredge	DHY
Total no. of tows:	total number of tows corresponding to the landing.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of clams selected from the catch according exclusively to commercial criteria.	

Sampled cat.:	code of the commercial category sampled:	
	unsorted:	0
	very small:	1
	small:	2
	medium:	3
	large:	4
	very large:	5
	others (to be described in the notes):	9

Cat. Weight: total weight, in kilograms, of the category from which the sampled clams have been selected.

Sample weight: total weight, to the nearest 0.1 kilogram, of all the measured clams noted on the form. The value can be exact or estimated.

Length: shell anteroposterior length measured according to the procedures.

Count: for each measured clam, draw a vertical line (|) in the space corresponding to the length of the shell.

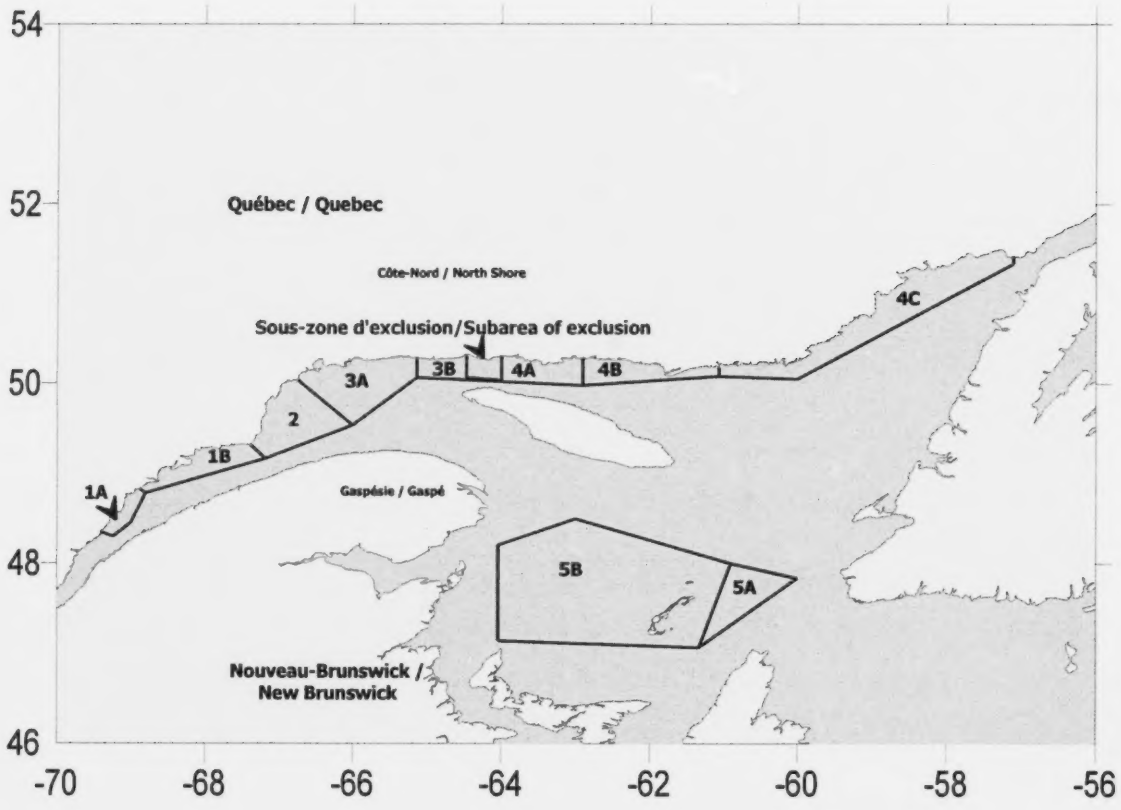
Total: total number of shells measured for each length-class.

No. measured clams: total number of measured clams noted on the form.

No. smashed clams: total number of smashed clams in the sample that could not be measured.

Notes: space provided for comments.

Surf Clam sp. fishing zones



Type of measurement used for Surf Clam sp. sampling.

SURF CLAM SP.

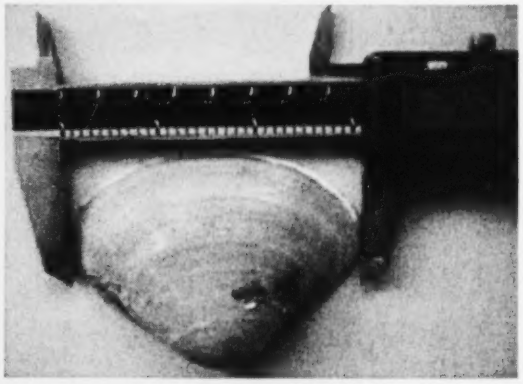
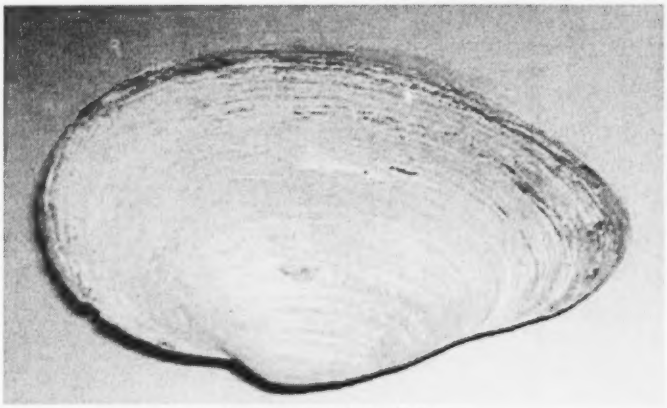


Photo: S. Hurtubise

maximal anteroposterior length

SOFT SHELL CLAM CODE: 4318	 Photo: S. Hurtubise
Fishing zone:	**1 to 3**
Sampling protocol:	**at-sea or port sampling**

PROCEDURES

USE:	
at-sea or manually pick:	Complete the form according to the related directives. Change form after each sampled haul.
port:	Complete the form according to the related directives.
SELECT:	
at-sea or manually pick:	A maximum of 150 clams by haul/pan for as many hauls/pans as possible per trip.
port:	Select randomly around 150 clams from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of clams to sample by category is defined by the following rule: 150 clams ÷ by the number of categories = the number of clams to measure by category.
SEX:	No.
MEASURE:	The shell maximal anteroposterior length and round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Soft Shell Clam (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the first cell according to the following codification:	
	Magdalen Islands:	1
	Gaspé:	2
	North Shore :	3
	The fishing ground is noted in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	standard dredge (boat)	DRB
	hydraulic dredge (with no conveyor)	DHY
	hydraulic dredge (with a conveyor)	DHYC
	hydraulic rake	RHY
	manually picked	CMA

Total no. of tows/pans:	total number of tows or of collected pans at the time of picking, corresponding to the landing.
Total width of the dredge:	total width of a dredge multiplied by the total number of used dredges and round to the nearest 0.1 m.
Seq. no. of tow/pan:	sequential number of the tow or of pan filling, as determined by the fisher.
Depth:	depth, in meters, of the site where the gear has been fishing.
Tow/pick duration:	number of minutes during which the sampled dredge was fishing or number of minutes spent by the harvester to fill the sampled pan.
Tow/pan weight:	total weight, in kilograms, of the tow/pan (before discarding) for the sampled species.
Sampled fraction of tow/pan:	sampled fraction, in percent, of the tow/pan. Notice: A tow may be done with more than one dredge.
Fishing site:	position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Length:	shell anteroposterior length measured according to the procedures.
Count:	for each measured clam, draw a vertical line (|) in the space corresponding to the length of the shell.
Total:	total number of shells measured for each length-class.
No. measured clams:	total number of measured clams noted on the form.
No. smashed clams:	total number of smashed clams in the sample that could not be measured.
Notes:	space provided for comments.

Directives related to the form – Soft Shell Clam (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the first cell according to the following codification:	
	Magdalen Islands:	1
	Gaspé:	2
	North Shore:	3
	The remaining cells are left blank.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	standard dredge (boat)	DRB
	hydraulic dredge (with no conveyor)	DHY
	hydraulic dredge (with a conveyor)	DHYC
	hydraulic rake	RHY
	manually picked	CMA

Total no. of tows/pans:	total number of tows or of collected pans at the time of picking, corresponding to the landing.
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of clams selected from the catch according exclusively to commercial criteria.
Sampled cat.:	code of the commercial category sampled:

unsorted:	0
very small:	1
small:	2
medium:	3
large:	4
very large:	5
others (to be described in the notes):	9

Cat. weight:	total weight, in kilograms, of the category from which the sampled clams have been selected.
Sample weight:	total weight, at the nearest 0.1 kilogram, of all the measured clams noted on the form. The value can be exact or estimated.
Length:	shell anteroposterior length measured according to the procedures.
Count:	for each measured clam, draw a vertical line (|) in the space corresponding to the length of the shell.
Total:	total number of shells measured for each length-class.
No. measured clams:	total number of measured clams noted on the form.
No. smashed clams:	total number of smashed clams in the sample that could not be measured.
Notes:	space provided for comments.

Type of measurement used for Soft Shell Clam sampling.

SOFT SHELL CLAM

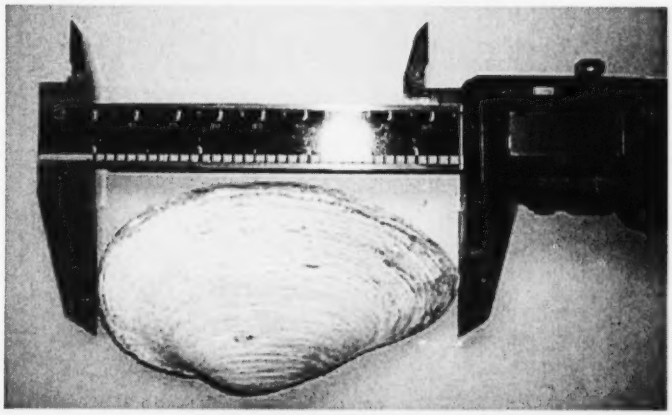
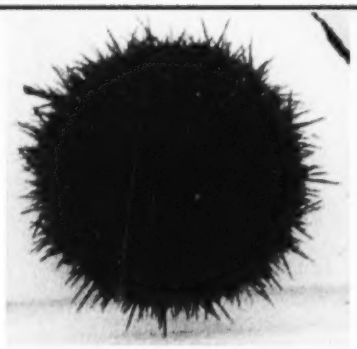


Photo: S. Hurtubise

maximal anteroposterior length

GREEN SEA URCHIN CODE: 6411	 Photo: M. Beaudoin
Fishing zone:	**1 to 15**
Sampling protocol:	**at-sea or port sampling**

PROCEDURES	
USE:	
at-sea or manually pick:	Complete the form according to the related directives. Change form after each sampled haul.
port:	Complete the form according to the related directives.
SELECT:	
at-sea or manually pick:	A maximum of 150 urchins by haul/dive for as many hauls/dives as possible per trip.
port:	Select randomly around 150 urchins from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of urchins to sample by category is defined by the following rule: 150 urchins ÷ by the number of categories = the number of urchins to measure by category.
SEX:	No.
MEASURE:	The shell maximal width (diameter) and round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form – Green Sea Urchin (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone ground:	the fishing zone in the first three cells. The fishing ground is noted in and in the last four cells.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice : Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	pots	FPO
	swab	DMO
	diving	PLO
	others (to be described in the notes)	AUT
Total no. of pots/tows/dives:	total number of pots, of tows or of dives (all divers combined) corresponding to the landing.	
Total width of the dredge:	total width of a dredge multiplied by the total number of used dredges and round to the nearest 0.1 m.	
Seq. no. of pot/tow/dive:	sequential number of the pot, of the tow or of the dive (all divers combined), as determined by the fisher.	
Depth:	depth, in meters, of the site where the gear has been fishing.	
Soaking time of pot/tow/dive:	number of minutes during which the sampled pot or dredge was effective or number of minutes spent by the diver to fill the sampled pan.	

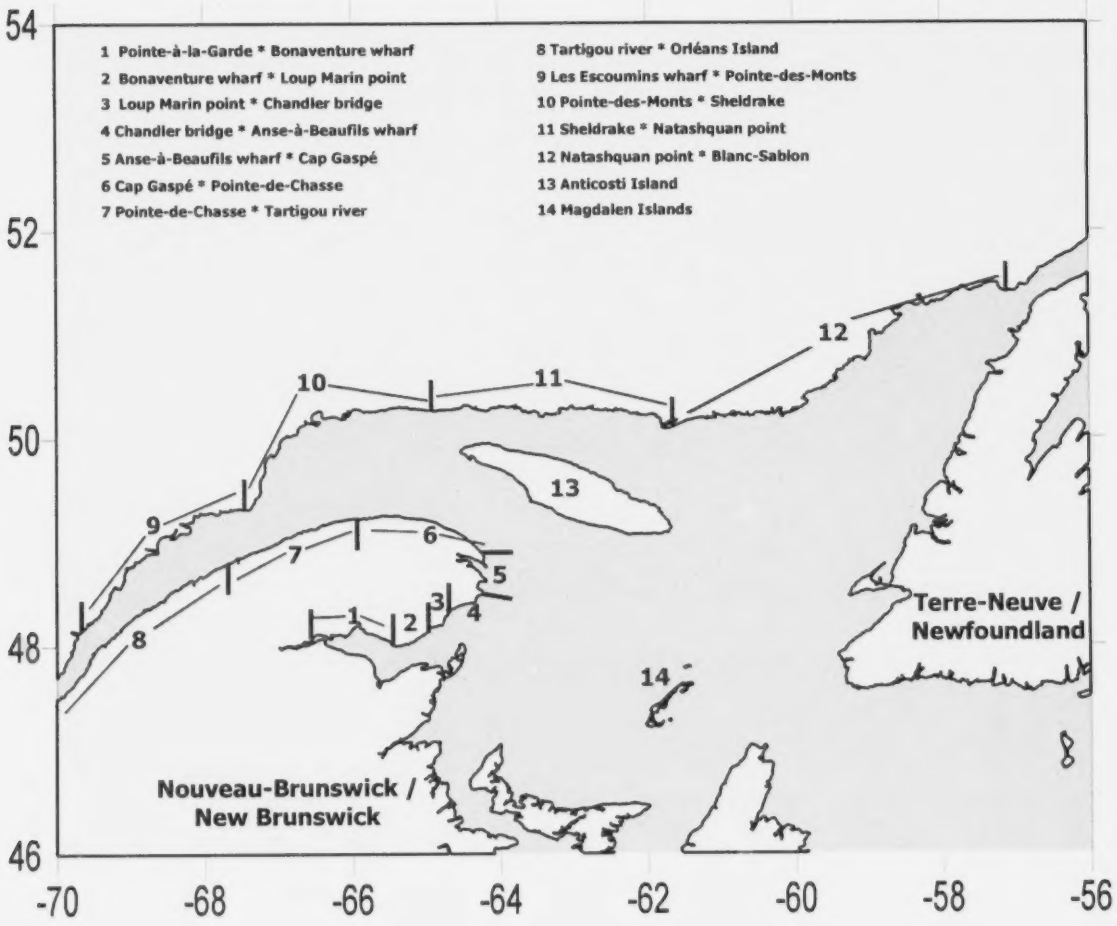
Catch weight pot/tow/dive	total weight, in kilograms, of the pot or of the tow (before discarding) or of the harvest of the sampled species by diving.
Fraction of sampled pot/tow/dive:	sampled fraction, in percent, of the pot, tow or harvest by diving.
	Notice: A tow may be done with more than one dredge.
Fishing site:	position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Width:	shell maximal width measured according to the procedures.
Count:	for each measured urchin, draw a vertical line (|) in the space corresponding to the width of the shell.
Total:	total number of urchins measured for each width-class.
No. measured urchins:	total number of measured urchins noted on the form.
Notes:	space provided for comments.

Directives related to the form – Green Sea Urchin (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The remaining cells are left blank.	
Landed weight:	total weight, in kilograms, of the sampled species commercial landing. Notice: Landing = catch - discard.	
Gear:	note the gear code according to the following description:	
	pots	FPO
	swab	DMO
	diving	PLO
	others (to be described in the notes)	AUT
Total no. of pots/tows/dives:	total number of pots, of tows or of dives (all divers combined) corresponding to the landing.	
No. of cat.:	total number of categories recorded in the landing (when applicable). NB the category is designating a bunch of urchins selected from the catch according exclusively to commercial criteria.	

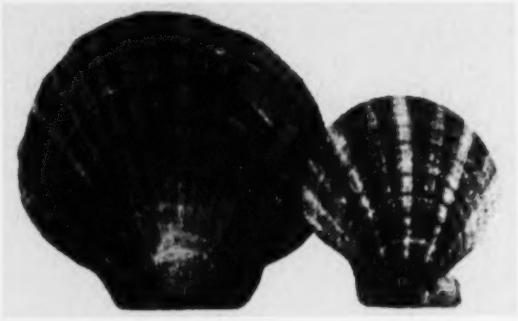
Sampled cat.:	code of the commercial category sampled:
	unsorted: 0
	very small: 1
	small: 2
	medium: 3
	large: 4
	very large: 5
	others (to be described in the notes): 9
Cat. weight:	total weight, in kilograms, of the category from which the sampled urchins have been selected.
Sample weight:	total weight, at the nearest 0.1 kilogram, of all the measured urchins noted on the form. The value can be exact or estimated.
Width:	shell maximal width measured according to the procedures.
Count:	for each measured urchin, draw a vertical line (|) in the space corresponding to the width of the shell.
Total:	total number of urchins measured for each width-class.
No. measured urchins:	total number of measured urchins noted on the form.
Notes:	space provided for comments.

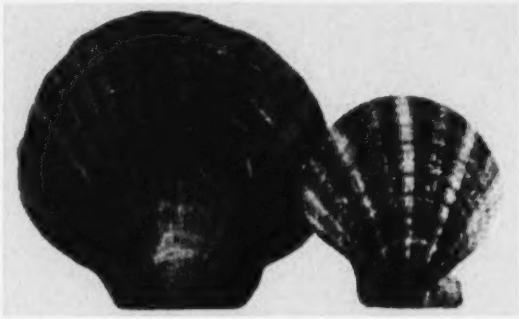
Green Sea Urchin fishing zones.



Type of measurement used for Green Sea Urchin sampling.

GREEN SEA URCHIN
Photo: M. Beaudoin
Shell maximal width

SCALLOP SP CODE: Giant **4321** Iceland **4322**	 Giant Iceland Photo: H. Bourdages
Fishing zone:	**15 to 20**
Sampling protocol:	**at-sea sampling**
PROCEDURES	
USE: **at-sea:**	Complete the form according to the related directives. Change form after each sampled tow.
SELECT: **at-sea:**	A maximum of scallops by tow for as many tows as possible per trip.
SEX: **at-sea:**	No.
MEASURE: **at-sea:**	The shell maximal height, from the hinge to the opposite end and round to the nearest 1.0 mm.
COLLECT: **at-sea:**	2 top shells per 1.0 mm height-class per species, excluding the shells of dead scallops.
PRESERVE: **at-sea:**	The washed shells frozen in waxed cartons labeled according to the instructions.

SCALLOP SP CODE: Giant **4321** Iceland **4322**	 Giant Iceland Photo: H. Bourdages
Fishing zone:	**15 to 20**
Sampling protocol:	**port sampling**
PROCEDURES	
USE:	The form according to the related directives.
SELECT:	**muscles:** Select randomly around 150 muscles from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of muscles to sample by category is defined by the following rule: 150 muscles ÷ by the number of categories = the number of muscles to weigh by category. **shells:** Select randomly around 150 shells from the overall catch. If the landing is categorized according to commercial criteria, all categories must be sampled. The number of shells to sample by category is defined by the following rule: 150 shells ÷ by the number of categories = the number of shells to measure by category.
SEX:	No.
MEASURE:	**muscles:** The weight of each muscle and round to the nearest 1.0 g. **shells:** The shell maximal height, from the hinge to the opposite end and round to the nearest 1.0 mm.
COLLECT:	No.
PRESERVE:	No.

Directives related to the form - Scallop sp. (at-sea sampling).

Coded by:	first cell:	M = DFO, sea O = Observer, sea
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed	
Fishing zone ground:	the fishing zone in the first three cells. The fishing ground is noted in and in the last four cells.	
Landed weight:	total weight of the sampled species commercial landing. This value may be related to scallops in the shell and will be noted in kilograms or can be associated to shucked meats and will be noted to the nearest 0.1 kilogram. Notice: Landing = catch - discard.	
Gear:	code of the gear used by the fisher.	
Total no. of tows:	total number of tows corresponding to the landing.	
Total width of the dredge:	total width of a dredge multiplied by the total number of used dredges and round to the nearest 0.1 m.	
Seq. no. of tow:	sequential number of the tow, as determined by the fisher.	
Depth:	depth, in meters, of the site where the gear has been fishing.	
Tow duration:	number of minutes during which the sampled dredge was effective.	
Speed:	speed, in knots, at which the dredge was towed for the sampled tow.	

Catch weight:	total tow weight (before discarding) for the sampled species. This value may be related to scallops in the shell and will be noted in kilograms or can be associated to shucked meats and will be noted to the nearest 0.1 kilogram.
Fraction of sampled tow:	sampled fraction, in percent, of the tow. Notice: A tow may be done with more than one dredge.
Fishing site:	position of the sampled tow: latitude and longitude (ddmm.mm) or Loran-C coordinates if latitude and longitude are not available.
Height:	shell maximal height measured according to the procedures.
Count:	for each measured scallop, draw a line (/) if alive or a plus (+) if dead, in the space corresponding to the height-class. Dead scallops are only those empty of their contents whose two shells are still connected at the base by their ligament. The scallop remains open when held in our hands. It will reopen itself if closed (as castanets). The inside of the shell is clean as the epibionts have not yet had the time to settle. Moreover, the ligament hoding both shells is almost not damaged. The simple shells (one valve only) must not be measured nor counted. Dead scallops are used to estimate the natural mortality that has occurred during the previous year.
Total : Alive (/) - Dead (+):	total number of measured scallops for each height-class by separately counting the alive and dead scallops.
No. measured:	total number of measured scallops noted on the form.
No. frozen:	total number of frozen shells according to the procedures.
Notes:	space provided for comments.

Directives related to the form - Scallop sp. (port sampling).

Coded by:	first cell:	Q = DFO, port
	following two cells:	sampled region code. CN = North Shore ES = Estuary GN = North Gaspé GS = South Gaspé IM = Magdalen Islands
	last three cells:	first sampler initials.
Species:	sampled species code according to the data sheets.	
Sample no.:	each sampler gives a unique number to each sample by species, regardless of the fishing location.	
Date:	sampling date (DD MM YY).	
Vessel name:	name of the fishing vessel that caught the sampled species.	
CFV no.:	commercial fishing vessel number (999999 for combined vessels, no vessel or when number not available).	
Landing district:	code of the district where the sampled species was landed.	
Fishing zone and ground:	the fishing zone in the first three cells. The remaining cells are left blank.	
Landed weight:	total weight of the sampled species commercial landing. This value maybe related to scallops in the shell and will be noted in kilograms or can be associated to shucked meats and will be noted to the nearest 0.1 kilogram. Notice: Landing = catch - discard.	
Community code:	code of the community where the scallop was landed.	
Gear:	code of the gear used by the fisher.	
Total no. of tows:	total number of tows corresponding to the landing.	
No. of cat.:	total number of categories recorded in the landing (when applicable). Notice: The category is designating a bunch of scallops selected from the catch according exclusively to commercial criteria.	

Sampled cat.: code of the commercial category sampled:

unsorted:	0
very small:	1
small:	2
medium:	3
large:	4
very large:	5
others (to be described in the notes):	9

Cat. weight: total weight of the category from which the sampled scallops have been selected. This value may be related to scallops in the shell and will be noted in kilograms or can be associated to shucked meats and will be noted to the nearest 0.1 kilogram.

Sample weight: total weight, at the nearest 0.1 kilogram, of all the measured scallops noted on the form. The value, accurate or estimated, is associated only with scallops in the shell.

Type of measure: the type of measurement can be expressed as follows:

weight:	P
height:	T

Weight/Height: weight of the muscle or shell maximal height measured according to the procedures.

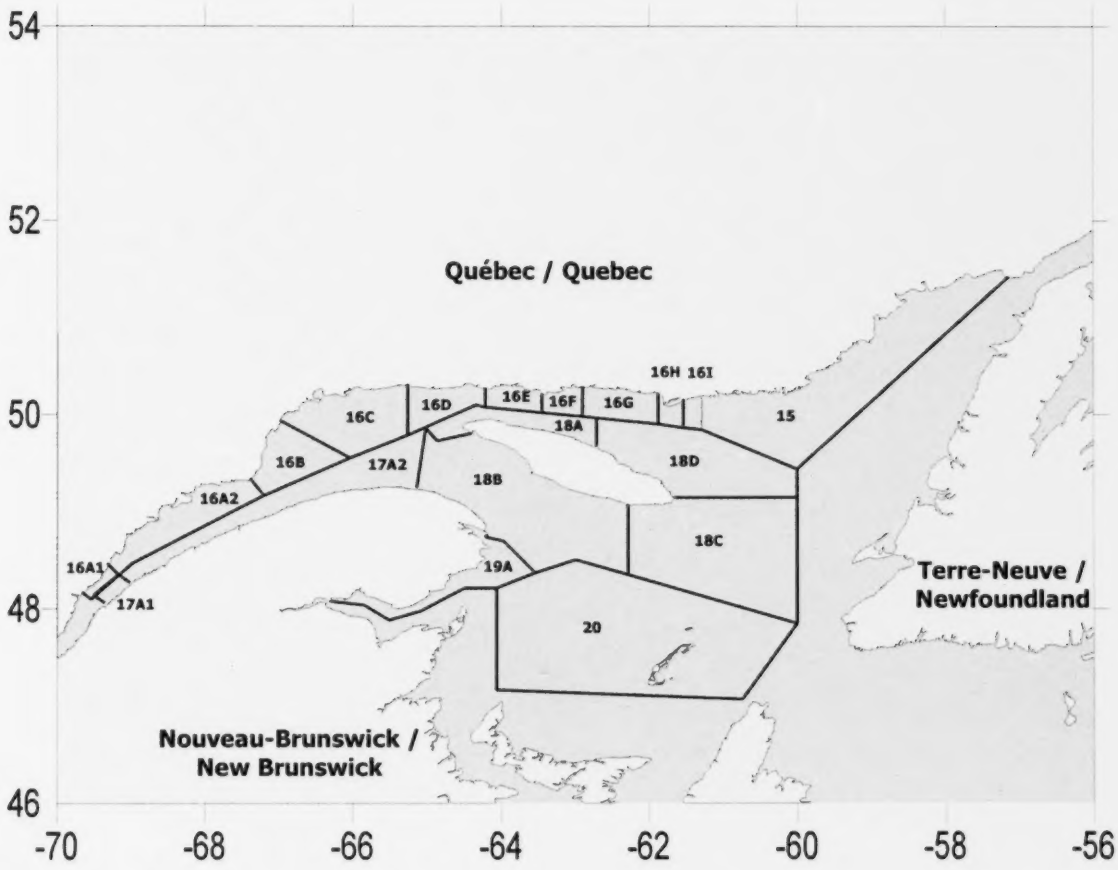
Count: for each measured scallop, draw a vertical line (|) in the space corresponding to the weight-class or the height-class.

Total: total number of weighed muscles or measured shells for each weight-class or height-class.

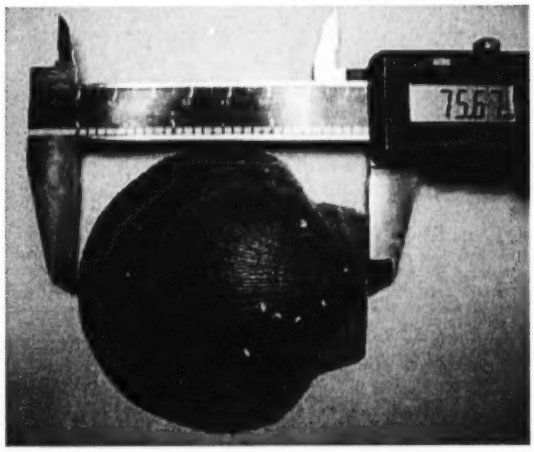
No. measured: total number of weighed muscles or measured shells noted on the form.

Notes: space provided for comments.

Scallop sp. fishing zones.



Type of measurement used for Scallop sp. sampling

SCALLOP SP.
 Photo: S. Hurtubise Scallop shell maximal height, from the hinge to the opposite end.

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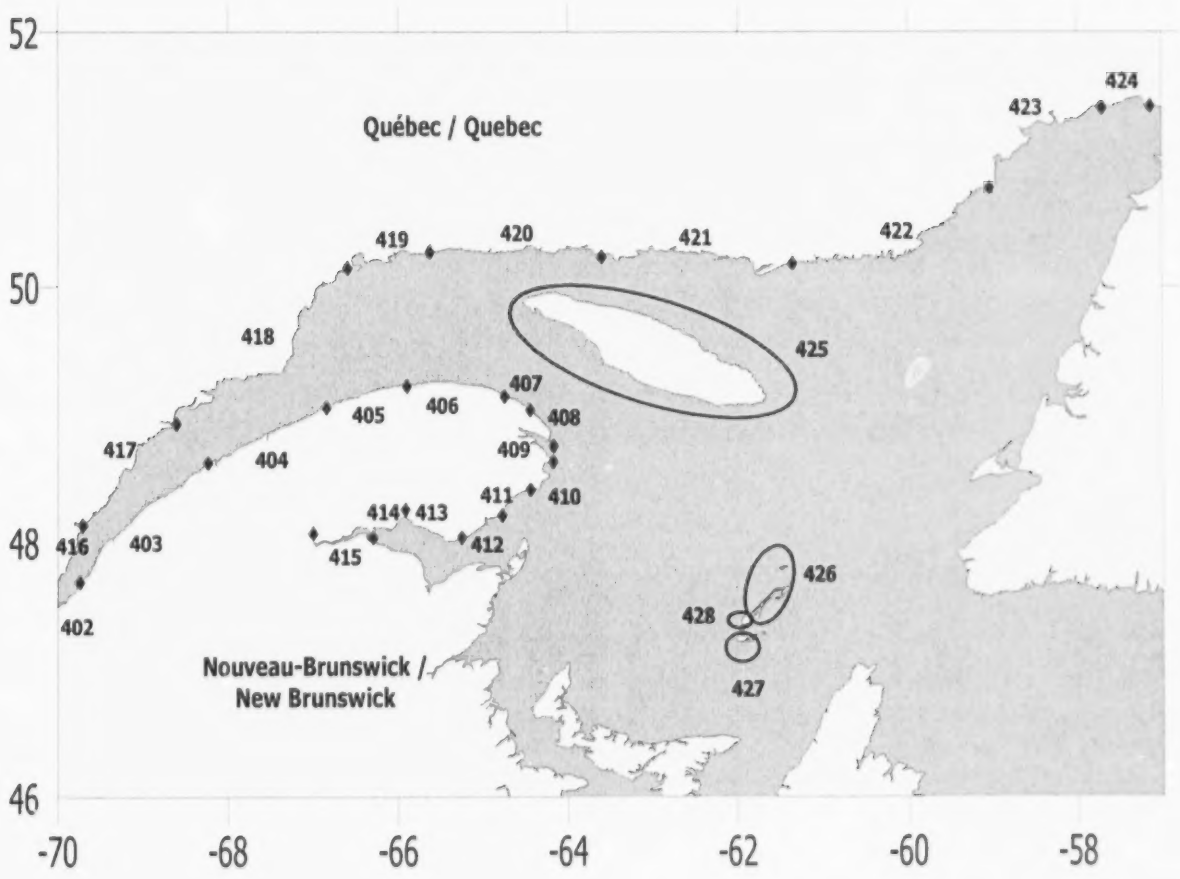
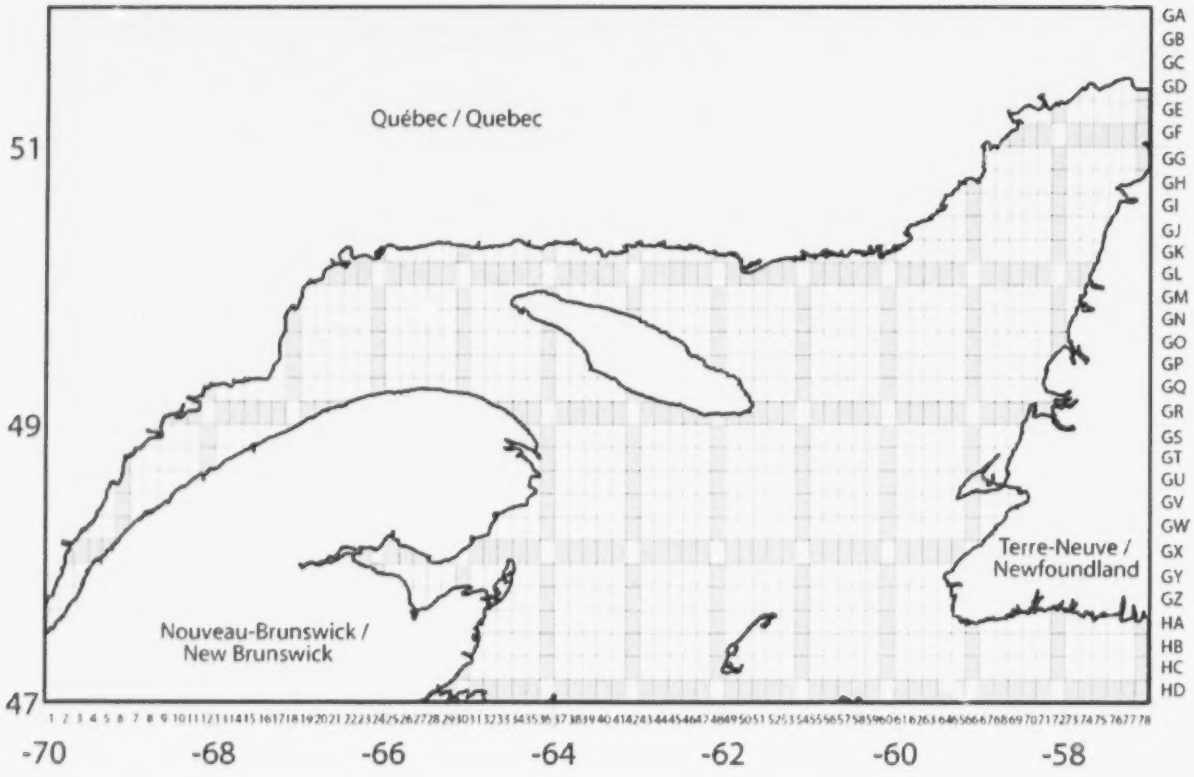
Description of the Quebec landing districts (DFO 1984) See the map.

DISTRICT	CODE	DESCRIPTION
L'ISLET	401	Anse-à-Gilles to Pointe-Rouge
KAMOURASKA	402	*Pointe-Rouge to Saint-André
RIVIÈRE-DU-LOUP /RIMOUSKI	403	Notre-Dame-du-Portage to Sainte-Flavie
MATANE	404	*Sainte-Flavie to Capucins
GASPÉ-NORD	405 406 407	Cap-Chat to Rivière-à-Claude *Rivière-à-Claude to Saint-Hélier Pointe-à-la-Renommée to Petit-Cap
GASPÉ-SUD	408 409 410 411	Petite-Rivière-au-Renard to Cap-Gaspé *Cap-Gaspé to Pointe-Saint-Pierre *Pointe-Saint-Pierre to Brèche-à-Manon river *Brèche-à-Manon river to Pointe au Maquereau
BONAVENTURE	412 413 414 415	*Pointe au Maquereau to Paspébiac New Carlisle to Grande-Cascapédia *Grande-Cascapédia to Pointe de Miguasha *Pointe de Miguasha to rivière Restigouche
CHARLEVOIX	416	Cap-Tourmente to Saguenay river
SAGUENAY	417 418	*Saguenay river to Betsiamites river *Betsiamites river to Sainte-Marguerite river
DUPLESSIS	419 420 421 422 423 424 425	*Sainte-Marguerite river to Pigou river *Pigou river to Havre-Saint-Pierre *Havre-Saint-Pierre to Kegaska river *Kegaska river to Baie-des-Moutons *Baie-des-Moutons to Saint-Paul river *Saint-Paul river to Blanc-Sablon Anticosti Island
ÎLES-DE-LA MADELEINE	426 427 428	Havre-aux-Maisons Island, Grande Entrée Island, Grosse Île, Brion Island, East Island, Shag Island Havre-Aubert Island, Entrée Island Cap-aux-Meules Island
*** Location included in the district.**		

Location of landing districts in Quebec.



Fishing ground grid and coding (Adapted from DFO 1997b).



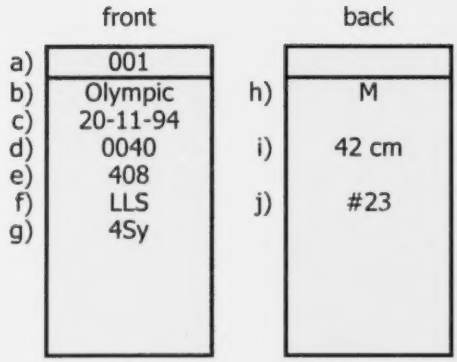
Fishing gear codes (DFO 1984).

CATEGORY	CODE	GEAR TYPE
TRAWL	TBB	Beam trawl
	OTB	Bottom otter trawl (unspecified)
	OTB1	Bottom otter trawl (side)
	OTB2	Bottom otter trawl (stern)
	GRL1	Bottom otter trawl (side with grid)
	GRL2	Bottom otter trawl (stern with grid)
	PTB	Bottom pair trawl
	OTM	Midwater trawl (unspecified)
	OTM1	Midwater trawl (side)
	OTM2	Midwater trawl (stern)
	PTM	Midwater pair trawl
	TXS	Shrimp trawl
SEINE NETS	SDN	Danish seine
	SSC	Scottish seine
	SPR	Pair seine
	PS	Purse seine
	SB	Beach seine
	LA	Lampara
GILLNETS	GN	Gillnet (unspecified)
	GNS	Gillnet (set or fixed)
	GND	Gillnet (drift)
HOOKS AND LINES	LL	Longline (unspecified)
	LLS	Longline (set or fixed)
	LLD	Longline (drift)
	LLG	Handline
	LHP	Manual jigger
	LHM	Mechanical jigger
	LX	Hook and line (unspecified)
TRAP AND LIFT NETS	FIX	Trap (unspecified)
	FPN	Open trap (cod, herring)
	FPO	Pot (crab and lobster)
	FYK	Hoop net
	FWR	Weir
DREDGES	DRB	Dredge (boat)
	DRH	Dredge (hand)
OTHER GEARS	HAR	Harpoon
	MIS	Miscellaneous
	NK	Unknown

Identification of samples

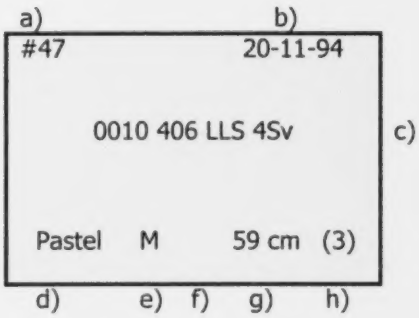
1. VIAL: (identification label)

a) sample number
b) vessel name
c) date
d) species
e) district
f) gear
g) fishing zone
h) sex
i) length
j) otolith number



2. OTOLITH ENVELOPE:

a) sample number
b) date
c) species, district, gear, fishing zone
d) vessel name (or fisher)
e) sex
f) maturity (when applicable)
g) fish length
h) otolith number



3. WAXED CARTON: (For frozen specimens)

PÊCHES ET OCÉANS CANADA
INSTITUT MAURICE-LAMONTAGNE
850 ROUTE DE LA MER
MONT-JOLI, QUEBEC

ESPÈCE / SPECIES: Maquereau
LIEU DE DÉBARQUEMENT / CROISIÈRE: Grande-Entrée
LANDING PORT / CRUISE:
NOM DU BATEAU: Nordik ENGIN: GNS
SHIP NAME: GEAR:
LIEU DE PÊCHE: 4Tf
FISHING LOCATION:
NO. ÉCHANTILLON: 002 TRAIT: NOMBRE DE BOÎTES: 1 DE: 3
SAMPLE NUMBER: SET: NUMBER OF CARTONS: OF:
DATE HEURE: 10-10-91 ÉCHANTILLONNEUR: C Turbide
DATE TIME: SAMPLE BY:
NOTES:

The specimens must be frozen as soon as possible.

FRENCH NAME	SCIENTIFIC NAME	ENGLISH NAME	OTHER NAMES USED
Aiguillat commun	*Squalus acanthias*	Spiny Dogfish	Chien de mer
Flétan de l'Atlantique	*Hippoglossus hippoglossus*	Atlantic Halibut	Halibut
Flétan noir	*Reinhardtius hippoglossoides*	Greenland Halibut	Turbot
Limande to queue jaune	*Limanda ferruginea*	Yellowtail Flounder	Queue jaune, Sole
Merluche blanche	*Urophycis tenuis*	White Hake	Merluche, Barbue
Morue franche	*Gadus morhua*	Atlantic Cod	Cabillaud, Codfish
Plie canadienne	*Hippoglossoides platessoides*	American Plaice	Sole
Plie grise	*Glyptocephalus cynoglossus*	Witch Flounder	Grey sole
Plie rouge	*Pleuronectes americanus*	Winter Flounder	Black back
Sébaste	*Sebastes sp.*	Redfish	Poisson rouge Perche
Capelan	*Mallotus villosus*	Capelin	Caplin
Hareng de l'Atlantique	*Clupea harengus harengus*	Atlantic Herring	Hareng, Sardine
Maquereau bleu	*Scomber scombrus*	Atlantic Mackerel	Maquereau

Groundfish

Pelagics

FRENCH NAME	SCIENTIFIC NAME	ENGLISH NAME	OTHER NAMES USED
Crabe Hyas	*Hyas araneus* *Hyas coarctatus*	Atlantic Lyre Crab Arctic Lyre Crab	Crabe araignée Crabe violon
Crabe commun	*Cancer irroratus*	Atlantic Rock Crab	Crabe de roche, Tourteau
Crabe des neiges	*Chionoecetes opilio*	Snow Crab	Crabe
Crevette nordique	*Pandalus borealis*	Northern Shrimp	Crevette
Homard d'Amérique	*Homarus americanus*	American Lobster	Homard
Buccin commun	*Buccinum undatum*	Waved Whelk	Bourgot, Buccin
Couteau de l'Atlantique	*Ensis directus*	Atlantic Jackknife Clam	Couteau, rasoir
Mactre de l'Atlantique	*Spisula solidissima*	Atlantic Surf Clam	Palourde commune
Mactre de Stimpson	*Mactromeris polynyma*	Arctic Surf Clam	Palourde de Stimpson
Mye commune	*Mya arenaria*	Soft Shell Clam	Coque, Mye
Pétoncle géant	*Placopecten magellanicus*	Sea Scallop	Coquille St-Jacques
Pétoncle d'Islande	*Chlamys islandica*	Iceland Scallop	Pétoncle
Oursin vert	*Strongylocentrotus droebachiensis*	Green Sea Urchin	Oursin

Crustaceans Shellfish Echinoderms

Summary of the fish sampling protocols.

SPECIES	CODE	LENGTH	ACCURACY	SEX	OTOLITHS	FISH SAMPLE
SPINY DOGFISH	0220	total	1.0 cm	yes	1 spine by 1.0 cm per sex	no
CAPELIN	0064	total	1.0 mm	yes	at the laboratory	1 per 5.0 mm per sex
ATLANTIC HALIBUT	0030	fork	1.0 cm	yes	3 oto. by 1.0 cm per sex	no
GREENLAND HALIBUT	0031	fork	1.0 cm	yes	1 oto. by 1.0 cm per sex	no
ATLANTIC HERRING	0060	total	0.5 cm	no	at the laboratory	4T: 2 by 0.5 cm 4RS: 55 randomly
YELLOWTAIL FLOUNDER	0042	total	1.0 cm	yes	1 oto. by 1.0 cm per sex	no
ATLANTIC MACKEREL	0070	fork	0.5 cm	no	at the laboratory	2 by 0.5 cm
WHITE HAKE	0012	total	1.0 cm	no	1 oto. by 1.0 cm	no
ATLANTIC COD	0010	fork	1.0 cm	no	4T: 1 oto. by 1.0 cm 4RS, 3PN: 3 oto. by 3.0 cm	no
AMERICAN PLAICE	0040	total	1.0 cm	yes	1 oto. by 1.0 cm per sex	no
WITCH FLOUNDER	0041	total	1.0 cm	yes	1 oto. by 1.0 cm per sex	no
WINTER FLOUNDER	0043	total	1.0 cm	yes	no	no
REDFISH SP.	0023	fork	1.0 cm	yes	no	no

Summary of the invertebrates sampling protocols.

SPECIES	CODE	LENGTH/WEIGHT	ACCURACY	SEX	MATURITY	SPECIMEN SAMPLE
HYAS CRAB	2521 or 2527	-carapace maximal width -right claw maximal height -weight	1.0 mm 0.1 mm 1.0 g	yes	-carapace condition -eggs	no
ROCK CRAB	2513	carapace maximal width	1.0 mm	yes	-carapace condition -eggs	no
SNOW CRAB	2526	-carapace maximal width -right claw maximal height -weight	1.0 mm 0.1 mm 1.0 g	yes	-carapace condition -eggs	no
NORTHERN SHRIMP	2210	no	no	no	no	~ 3 kg from the last tow of the trip.
AMERICAN LOBSTER	2550	cephalothorax maximal length	1.0 mm	yes	eggs	no
WAVED WHELK	4211	shell maximal height	1.0 mm	yes	no	no
ATLANTIC JACKKNIFE CLAM	4301	maximal anteroposterior length	1.0 mm	no	no	no
ATLANTIC SURF CLAM	4317	maximal anteroposterior length	1.0 mm	no	no	no
STIMPSON SURF CLAM	4355	maximal anteroposterior length	1.0 mm	no	no	no
SOFT SHELL CLAM	4318	maximal anteroposterior length	1.0 mm	no	no	no
GIANT SCALLOP	4321	-shell maximal height -weight	1.0 mm 1.0 g	no	no	2 by 1.0 mm
ICELAND SCALLOP	4322	-shell maximal height -weight	1.0 mm 1.0 g	no	no	2 by 1.0 mm
GREEN SEA URCHIN	6411	shell maximal width	1.0 mm	no	no	no

Sampling and assessment responsibilities by species in the Gulf of St. Lawrence.

Species/NAFO Division(s) or Location	Sampled by the region of:	Assessment responsibility assigned to the region of:
Spiny Dogfish, 4RST	Quebec/Gulf/Newfoundland	Maritimes
Capelin, 4RST	Quebec/Newfoundland	Quebec
Atlantic Halibut, 4RST	Quebec/Gulf/Newfoundland	Quebec
Greenland Halibut, 4RST	Quebec/Gulf/Newfoundland	Quebec
Atlantic Herring, 4RS	Quebec/Newfoundland	Quebec
Atlantic Herring, 4T	Quebec/Gulf	Gulf
Yellowtail Flounder, 4T	Quebec/Gulf	Gulf
Atlantic Mackerel, Northwest Atlantic	Quebec/Gulf/Newfoundland/ Maritimes	Quebec
White Hake, 4T	Quebec/Gulf	Gulf
Atlantic Cod, 3Pn4RS	Quebec/Newfoundland	Quebec
Atlantic Cod, 4T	Quebec/Gulf	Gulf
American Plaice, 4T	Quebec/Gulf	Gulf
Witch Flounder, 4RST	Quebec/Gulf/Newfoundland	Gulf
Winter Flounder, 4T	Quebec/Gulf	Gulf
Redfish sp., unit 1	Quebec/Gulf/Newfoundland	Quebec
Waved Whelk, Quebec	Quebec	Quebec
Common Razor Clam, Quebec	Quebec	Quebec
Rock Crab, Quebec	Quebec	Quebec
Snow Crab, Quebec inshore	Quebec	Quebec
Snow Crab, Southern Gulf	Quebec/Gulf	Gulf
Northern Shrimp, Gulf	Quebec/Gulf/Newfoundland	Quebec
American Lobster, Quebec	Quebec	Quebec
Surf Clam sp., Quebec	Quebec	Quebec
Soft Shell Clam, Quebec	Quebec	Quebec
Green Sea Urchin, Quebec	Quebec	Quebec
Scallop sp., Quebec	Quebec	Quebec

Fish Invertebrates

NAFO: Northwest Atlantic Fisheries Organization.